

## Chapter 27

### Health engineering mandate

With 666 becoming the new symbol for problem solving, the philosophy on physical health will describe how the body is maintained by endless confrontations and conflict between vitamins and minerals. When one overpowers another for the same receptor site for too long, illness results. As long as the battle remains even, health will be the result. Is this the complete story of health? No. Another aspect of physical health is the presence of outside invaders(viruses) and this is when things become a bit more complex. When something foreign enters the body, and symptoms result, the solution may not always be as simple as balancing out a vitamin or mineral deficiency resulting from one vitamin or mineral overpowering another. To understand the gist of this health theory, imagine all the vitamins and minerals that allow the body to function. Now imagine that half of these vitamins or minerals and their resulting health functions belong to one side of health and the other half belong to another side of health with these 2 sides essentially opposing each other and in this opposition, certain symptoms of one sickness are made worse or better when a vitamin or mineral from one side enters the body and enhances the ability of that entire side of vitamins and minerals from which it came..... while, at the same time, weakening the ability of vitamin and mineral absorption from the other side of Vitamins and minerals. In essence, understanding that reducing one set of symptoms always makes another set of symptoms worse. A good analogy of the contenders for each side of health is WWII's Axis and Allied powers. While Germany, Japan, and Italy are different countries with different agendas, the success of one country in WWII equated to the success of the others in that alliance and at the same time, equated to a weakening of the

opposing alliance. The same goes with the Allied powers of US, Russia, and Britain. The success of one those countries in WWII benefitted the entire alliance while weakening the other alliance.

The newly entered vitamin or mineral is always the strongest in terms of absorption by the body. Now while some outside invaders(viruses or germs) enable one set of vitamin and minerals to overpower another and are easily destroyed by simply taking in antagonist vitamins and minerals from the other side and just correcting the deficiency, other viruses possibly(maybe) come in the body and attack both sides of the vitamin and mineral conflict. A good analogy is Japan attacking China while the Chinese Nationalists and the Chinese Communists were fighting each other around the time of WW2. Now you have a situation where you have make a choice on which side to empower first to weaken the virus. Doing so would weaken or deplete another set of vitamins and minerals and further exacerbate a part of the negative symptoms resulting from the virus, but the act of enabling one side injures the virus and reduces one set of symptoms. Now that the virus is injured, it cannot be destroyed until the other set of vitamins and minerals, which are being suppressed due the presence of the antagonist vitamins and minerals fighting the virus, gets its turn to take a shot at the virus. Now, in their turn to fight the virus, their presence then suppresses the previous set of vitamin and mineral alliance that went at the virus first. This helps eliminate some symptoms arising from earlier suppression, but brings back symptoms that arise from suppressing the vitamins and minerals which first fought the virus but were reduced when that first set of vitamin and minerals were enabled for absorption by the body. Now the virus is further injured, but the body is still suffering symptoms from the deficiency. In theory, once the

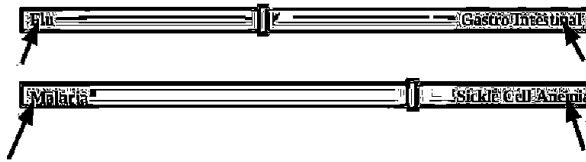
virus is eliminated by going back and forth between enabling each opposing alliance to fight the virus, the original conflict of both sides of vitamin and mineral alliances eventually returns and the need to simply correct the deficiency through vitamin or mineral intake results without the presence of the virus. It should also be noted that the power of viruses to enable an alliance of vitamin/minerals to overpower the other alliance of vitamin/minerals can help cure present ailments. If one has an ailment currently in the body, an incoming virus can bring the reinforcements needed by the oppressed alliance to overcome the vitamin/minerals imposition of the other alliance brought about by the current ailment. Even today's doctors are injecting sick patients with other sicknesses in order to fight their current sickness. For example, the Measles virus is sometimes used to help people fight cancer. So in using our theory about vitamin and mineral alliances and its opposition being simultaneously attacked by an outside invader(virus), we will look at the Ebola Virus. Ebola is a virus that enters body through bodily fluids and is often found in Bats and Monkeys. Once a person is infected with the Ebola virus, the virus itself attaches to and enters a cell and begins the process of replicating itself. In doing so it manages to destroy the part of the cell that would alert the white blood cells of the immune system, which would usually attack the virus and kill it. So In essence, the initial suppression of the white blood cells is what brings about first set of symptoms of a fever, sore throat, joint pain, muscle soreness, weakness, headache(according to Centers for Disease Control). According to the CDC, these are also the same symptoms of the flu. This makes it more important to see this as what the virus is doing and not so much the virus itself. In my observation, flu symptoms are just one side of the vitamin/mineral alliance asserting itself over the other alliance. But for the sake of simplicity, we will narrow the opposing alliances down to 2

major vitamins, Vitamin A from alliance 1, a supporter of flu-like symptoms and Vitamin E, an antagonist of flu like symptoms from alliance 2. As stated before, just like the alliances in WW2, the presence and assertion of one essentially strengthens the assertion of the entire alliance of which it's part of, while weakening the assertion of the opposing one and its alliance. So, with these first set of symptoms of Ebola, we have an over-assertion of Vitamin A, which would support those initial flu-like symptoms and low white blood cell count, and at the same time support the suppression of the opposing Vitamin E and its alliance, which would automatically equate to an ability to antagonize flu like symptoms and low white blood cell count. In theory, the solution to dealing with the first part of Ebola would just be simple treatment protocol for the flu. (I reckon Vitamin E to be the best fighter against flu symptoms). Here is where we have an issue. As far as I know, the first stage of Ebola doesn't reduce white blood cell count, it just kills the signaler, and thus leaves white blood cells oblivious to what the virus is doing. An analogy would be breaking into a building but modifying the cameras in a way that the security guards do not see anyone breaking into the building. In that scenario, you have crooks going into the building and taking everything without the guards being aware of it. So this brings us to the second stage of Ebola, which are the gastrointestinal problems along with the fever. Now at this point, the white blood cells have been alerted and are now bringing out all the guns. According to the CDC, the fever usually persists during this stage along with the gastrointestinal problems of vomiting and diarrhea. The dilemma here is that because Vitamin A is a supporter of flu symptoms, Vitamin E, which would actually support gastrointestinal problems and high white blood cell count, should have led to the suppression of the flu-like symptoms in its fight against Vitamin A for

the receptor site. Since I don't know the timetable of the symptoms of Ebola, I have to hypothesize that fever would spike immediately before the onset of gastrointestinal problems and then slowly dwindle (even though still there) as the Vitamin E and its alliance along with its symptomatic characteristics (due to over-assertion) of nausea, vomiting, and diarrhea would forcefully assert itself and eventually overtake the flu-like issues and their support from Vitamin A. According to some research, this is the make or break point for Ebola survival. It seems to warrant another hypothesis that those who survive Ebola experience a balancing effect during that stage (which equates to health) and those who don't experience that balance, end up having to deal with a complete takeover by the Vitamin E/gastro issue correlation. Since Vitamin E is also a blood thinner, this assessment would align with the final result of death for Ebola sufferers from hemorrhaging, which is caused by thin blood. During stage 2, because vitamin E raises blood pressure in its initial entrance, there should be a rise in blood pressure during its assertion at some point in stage 2 of Ebola. Because this assessment would conclude that Ebola is simply an overreaction by white blood cells due to the white blood cells initially not being able to spot the virus's presence, one can conclude the survival of Ebola would be based on the body's ability to limit this overreaction. According to the American Family Physician, a high white blood cell count is an emergency due to risk of hemorrhaging and brain infarction. Source: **Leukocytosis: Basics of Clinical Assessment** by NEIL ABRAMSON, M.D., and BECKY MELTON, M.D., Baptist Regional Cancer Institute, Jacksonville, Florida Am Fam Physician. 2000 Nov 1;62(9):2053-2060. This would infer that white blood cell/vitamin E/blood thinning/gastrointestinal issues/hemorrhaging are all related. The overall assessment would infer that flu symptoms

and gastro issues are inherently unrelated and are actually natural enemies. If the 2<sup>nd</sup> stage of Ebola is a heightened manifestation of both flu symptoms and gastro symptoms without any transition of one set of symptoms overpowering and suppressing the other, then the Ebola virus takes on a more complicated structure with the need to discover how blood thinning can occur without an excessive presence of white blood cells and vitamin E. If Vitamin E is being suppressed and bringing about flu symptoms simultaneously with Vitamin A being suppressed bringing about gastrointestinal, with the viral replication itself being the factor that's causing the symptoms and deficiencies of both opposing sides, then one has to decide which side of the vitamin/mineral alliance to empower first in order to began the process of weakening the virus by bringing the vitamin/mineral balance back to a normal level and knowing that empowering one alliance would weaken the virus but would exacerbate a part of the symptoms until the suppressed vitamin/mineral alliance gets its turn to magnify its presence in the body in order to fight the virus.

A good perspective toward health would not be in curing a disease, but making oneself sick in way that should oppose a current sickness in one's body. Health should be looked at as a swinging pendulum or a meter that has two opposite ends, with each end being a different sickness, in which the more one is sick toward one end of the spectrum, the less one is sick from that other end of the spectrum. On the next page is imagery to perceive how flu symptoms and gastrointestinal sickness appears on a spectrum on the opposite ends, and also how Malaria and Sickle cell do the same. Imagine the bar on the spectrum being the vitamin influence to bring the bars to one end away from the other.



It's common knowledge in the medical community that sickle cell anemia, which is a disorder of the red blood cells in which hemoglobin, a component of red blood cells needed to bring oxygen to other organs of the body, actually provides certain protections against another disease called Malaria, which is usually from insect bites and results in flu like symptoms (fever, chills, muscle pain, headache). In other words, those with Sickle Cell Anemia present in their body have very little chance of contracting Malaria. Sickle Cell Anemia, of which hemoglobin is found to be atypical, thus deforming the red blood cells into a sickle shape, usually presents symptoms of anemia, weakness and fatigue, swelling in the hands and feet, and jaundice (yellowing of the skin). The most notable study on why Sickle Cell Anemia provides protection against Malaria was done by Michael P Soares, a researcher at the Instituto Gulbenkian de Ciência (IGC), in Portugal. He and his team, of which included Ana Ferreira, a post-doctoral researcher, and Prof. Ingo Bechman, genetically engineered mice to produce one copy of sickle hemoglobin and after exposing the mice to Malaria, they found that the brain lesions usually associated with Malaria were absent. In this case, it was found that the atypical sickle hemoglobin repulsed the malaria parasite without interfering with the parasite's ability to infect. Source: Instituto Gulbenkian de Ciencia. **"Mystery solved: How sickle hemoglobin protects against malaria."** ScienceDaily. ScienceDaily, 29 April 2011. <[www.sciencedaily.com/releases/2011/04/110428123931.htm](http://www.sciencedaily.com/releases/2011/04/110428123931.htm)>. The

Sickle Cell/Malaria dynamic aligns with the hypothesis regarding Ebola and white blood cells/vitamin E and its antagonism to flu-like symptoms(vitamin A). According to medical research, Sickle Cell has been found to correlate with elevated white blood cell count. So, in applying our concepts from what was said about Ebola in the previous pages, we can conclude that Sickle cell's protection against malaria would be directly correlated with its natural high white blood cell count if our assessment for Ebola at the stage 2 phase indicates a transition of Vitamin E/white blood cell/gastrointestinal's overtaking of Vitamin A/flu-like symptom's grip on the body. Current treatment to reduce Sickle Cell symptoms involve taking a prescription medicine called Hydroxyurea, which lowers white blood cell count. That in itself implicates white blood cell count as a major component of the problems arising from Sickle Cell Anemia. Elevated white cell count is said to damage blood vessels by constantly tearing holes in blood vessel walls, which is exactly what happens in hemorrhagic fever from Ebola.

We can build upon this by transferring these concepts to another disease that carries flu like symptoms, HIV(Human Immunodeficiency Virus). HIV is a sexually transmitted disease that acts on the body by destroying white blood cells in the body. In doing so, it makes a person less able to fight infections. At the advanced stages, people who succumb to the later stages of HIV, which is called Acquired Immunodeficiency Syndrome(AIDS), usually die from whatever infection is able to enter the body as a result of not having the white blood cells to fight it. With the assessment from this writing that Ebola is an overreaction of the white blood cells, which are supported by



Vitamin E and elevated in Sickel Cell Anemia (with both Vitamin E and Sickel Cell being antagonistic to diseases that carry flu like symptoms of fever/muscle weakness), one can assume, in continuing with this pattern, that HIV, which destroys white blood cells, would be significantly opposed by a body environment infected with Sickel Cell or stage 2 Ebola when gastro/intestinal issues ensue. Interestingly, in an article at [www.blackaids.org](http://www.blackaids.org) written by Mark Mascolini on behalf of the International Aids Society, it says: "Sickel cell disease lowers the odds of HIV infection about 70%, according to analysis of 423,431 records of adult African-Americans admitted to the hospital from 1997 through 2009. In contrast, sickel cell disease raised chances of infection with hepatitis B or C virus (HBV or HCV)." His Source: Mehdi Nourai, Sergei Nekhai, Victor R Gordeuk. **Sickel cell disease is associated with decreased HIV but higher HBV and HCV comorbidities in US hospital discharge records: a cross- sectional study. Sexually Transmitted Infections.** 2012; 88: 528-533. So this confirms our assessment that anything related to a high white blood cell count, which is supported by Vitamin E, will antagonize anything associated with flu symptoms. The study regarding HIV and Sickel Cell showed that Sickel Cell actually raised the chances of infection with hepatitis B or C. From our assessment, it's easy to assume the reason for this is because Hepatitis B and C, unlike HIV, is associated with an elevated white blood cell count. In the later stages of Hepatitis C, an inflamed liver results in the depletion of stored Vitamin A(Vitamin E antagonizes Vitamin A) and a sharp rise in white blood cell count (vitamin E supports high white blood cell count). Source:

**www.hepctrust.org.** If Hepatitis C is this gradual attack on the liver to that point, then Hepatitis C must be associated with a high white blood cell count, which affirms why Sickle Cell would raise the chance of infection for Hepatitis C. Hepatitis C, in that case, would be fundamentally different from HIV. Hepatitis B and C are basically the same, the difference is in how they are transmitted. Hep C is transmitted through blood, and Hep B is transmitted through fluids. Since hepatitis B and C is associated with an increasingly elevated white blood cell count, sickle cell anemia, which automatically indicates a high white blood cell count, would present an environment that supports hepatitis's increasing elevation of white blood cells and the resulting damage on the liver. At this point, we are gradually formulating the idea that white blood cell count elevation is not exactly the body's response to infection in general, but the conditions necessary for the presence of certain diseases in the body. Meaning, a higher white blood cell has to be looked at as fighting an infection while simultaneously creating a problem and that just as certain diseases are mitigated by using medicine to increase white blood cell count, other diseases are mitigated by using medicine to decrease white blood cell count. It would be no coincidence that the medications used to treat sickle cell and hepatitis have side effects that lower white blood cell count.

If we take this further to Cancer, we can show how this dynamic continues to correlate. We are provided with research that shows how high white blood cell count is associated with an increased mortality risk for cancer. Cigarette smoking in the medical scientific community is a widely-recognized cause of elevated white blood cell count. Cigarette smoking is also a widely recognized factor in causing lung

cancer. From that alone, we can likely extrapolate that high white blood cell count is a risk factor for Cancer. Since it was determined in this writing that vitamin E is a natural supporter of high white blood cell count, we can now see how scientific research regarding Cancer lines up with that. The Sahlgrenska Academy at the University of Gotheburg performed a study on the antioxidant effect on lung cancer in mice. After the mice were given vitamin E and a drug called N-acetylcysteine In, researchers found that the lung cancer tumors accelerated in response to Vitamin E and caused the mice to die much faster than the lung cancer mice who were not given the Vitamin E.

Source: <https://sahlgrenska.gu.se/english/research/news-events/news-article//antioxidants-in-the-diet-can-worsen-cancer.cid1201629>

Martin Bergö, professor at the Sahlgrenska Cancer Center, University of Gothenburg. In another study done in Shanghai, non smoking women were evaluated for cancer risk and Vitamin E supplementation. It was found in that study that women who maintained a diet of vitamin E supplementation had a significantly higher risk of developing lung cancer, specifically adenocarcinomas, which is a type of tumor that can develop anywhere on the body including the lungs. Source: Wu Q-J, Xiang Y-B, Yang G, Li H-L, Lan Q, Gao Y-T, et al. **Vitamin E intake and the lung cancer risk among female nonsmokers: A report from the Shanghai Women's Health Study.** Int J Cancer. 2015;136:610–7. <https://doi.org/10.1002/ijc.29016>.

Sickle cell becomes linked into this study of cancer because research has found in a California Study that those with Sickel Cell Disease have a 72 percent higher risk of developing leukemia, which involves rapid overproduction of white blood cells. Source: **Increased risk of leukemia among sickle cell disease patients in California** Ann Brunson, Theresa H. M.

Keegan, Heejung Bang, Anjlee Mahajan, Susan Paulukonis, Ted Wun Blood. 2017 Sep 28; 130(13): 1597–1599. Prepublished online 2017 Aug 22. doi: 10.1182/blood-2017-05-783233 PMCID: PMC5620417. Sickle Cell Anemia, which constitutes a higher white blood cell count, provides a compatible environment for cancer. Another study using hospital data in England discovered a threefold to 10-fold higher cancer incidence among Sickle Cell Disease patients for hematologic cancers, and an increased risk for colon cancer, nonmelanoma skin cancer, kidney cancer, and thyroid cancer. Source: **Risk of individual malignant neoplasms in patients with sickle cell disease: English national record linkage study.** Seminog OO, Ogunlaja OI, Yeates D, Goldacre MJ J R Soc Med. 2016 Aug; 109(8):3039. To continue discovering more links between conditions that result in high white blood cell count, lets look at what happens when cancer is faced with Vitamin E's antagonist, Vitamin A. In a study done by Ecole Polytechnique Fédérale de Lausanne, researchers found that colon cancer tumors are the result of a deactivated gene responsible for tumor suppression. This gene is called the HOXA5 gene. In that study, they found that the factor responsible for its re-activation was Vitamin A. "In mice that had colon cancer, the treatment with retinoids(Vitamin A) blocked tumor progression and normalized the tissue. By turning the gene for HOXA5 back on, this treatment eliminated cancer stem cells and prevented metastasis in the live animals. The researchers got similar results with samples from actual patients." Source: Ecole Polytechnique Fédérale de Lausanne. **"Treating colon cancer with vitamin A."** ScienceDaily. ScienceDaily, 14 December 2015. < [www.sciencedaily.com/releases/2015/12/151214130400.htm](http://www.sciencedaily.com/releases/2015/12/151214130400.htm)>. In a study of the HOXA5 gene, which was activated by vitamin A, on lung

cancer, it was found that the proliferation of non small cell lung cancer cells are inhibited by expression the HOXA5 gene. Hypothetically, since Vitamin A activated the gene and blocked the progression of Colon Cancer, Vitamin A should also activate the same HOXA5 gene for lung cancer and subsequently block its progression. The vitamin A activated HOXA5 gene is linked to inhibiting cancer cell proliferation in a number of Cancers such as Colon, Lung, Gastric, Cervical, and Breast. One interesting fact about Vitamin A and colon cancer is that many who have opted to treat their colon cancer with natural means via diet found significant success drinking carrot juice, which is loaded with beta carotene, a precursor to Vitamin A. Over at a website called [www.chrisbeastcancer.com](http://www.chrisbeastcancer.com), 2 people, Ann Cameron and Ralph Cole wrote how they completely cured their Cancer by simply drinking Carrot juice without changing anything else in their diet. Ann Cameron has a book about her experience entitled "Curing Cancer with Carrots." To understand why studies of Vitamin A supplementation on lung cancer has not lived up to this clear link between Vitamin A and cancer is maybe due to the fact that something else may need to be involved in the supplementation of Vitamin A. We find in Vitamin E that most natural sources of it such as nuts and oils are very low in sugars. This could indicate the lack of necessity for the presence of sugar to ensure absorption. However, with beta carotene, most of the natural sources such as carrots, tomatoes, red peppers, cantaloupe, and sweet potatoes contain generous amounts of natural sugars. This must indicate a requirement for sugar to be present in order for Vitamin A to be absorbed. While Vitamin A is fat soluble(needing the presence of fat to be absorbed), its precursor, beta carotene, is not. If the study of Vitamin A reactivating the HOXA5 gene in cancer is directly linked to the experience of Ann Cameron's use of carrot juice to fully cure colon

cancer, then the Vitamin A needed to activate the HOXA5 gene in humans must be related to “Vitamin A with beta carotene as a precursor.” If we hypothesize that Vitamin A’s reactivation of the HOXA5 gene is contingent on the proper absorption of beta carotene as a precursor to Vitamin A, while needing the presence of sugar to effectuate a proper conversion, we can then relate that need for the presence of sugar as another aspect that plays a role in the white blood cell count dynamic. If cancerous tumor growth is linked to a high white blood cell count and Vitamin A is linked to activating a process that inhibits that tumor growth, with sugar as a prerequisite, then one can hypothesize that higher blood sugar is related to a lower white blood cell count while a lower blood sugar is related to a higher white blood cell count and subsequently a higher risk for cancerous tumors. Since sickle cell anemia is linked to a higher white blood cell count, and a higher white blood cell count is related to lower blood sugar, then sickle cell anemia, itself, should constitute a low risk for elevated blood sugar. In recent studies by Mary Elizabeth Lacy from Brown University School of Public Health, while using fasting glucose to measure diabetes risk, she and her colleagues had found that there is no indication of a higher or lower prevalence of diabetes in African Americans with Sickle cell versus those without it. However, when using the hemoglobin test A1c, which measures the risk for diabetes by measuring the amount of glucose sticking to red blood cells, they found that the test resulted in a much lower prevalence of diabetes diagnoses for those who had sickle cell trait compared to those who didn’t.....even though blood sugar levels were similar for both. Since red blood cells in Sickle Cell anemia don’t live as long, the blood cells have less time to collect glucose, and this why the A1c readings would infer less incidences of diabetes in the Sickle cell group. Source: Lacy

ME, Wellenius GA, Sumner AE, et al. **Association of Sickle Cell Trait With Hemoglobin A1c in African Americans.** JAMA. 2017;317(5):507–515. doi:10.1001/jama.2016.21035 However, there is no confirmation that the results of A1c for Sickle Cell trait is not related to biological factors. When it comes to type 1 and type 2 diabetes, it's been found that Type 1 diabetes is associated with a lower white blood cell count (Hillson Rowan. **Diabetes and the blood – white cells and platelets**) and Type 2 is associated with a higher white blood cell count. The difference between the 2 is that in type 1 diabetes, there is no insulin produced. In type 2 diabetes, there is insulin, but not enough. Most studies have found that the risk of type 2 diabetes is higher in those with a higher white blood cell count. The problem here is that my hypothesis that a higher blood sugar would be related to a lower white blood cell count lines up with the study for Type 1, but not for Type 2. The only way to resolve this dilemma of confusion as to how diabetes(type 1 and 2) could infer 2 different white blood cell factors, is by aligning the result of the high WBC associated with type 2 NOT with blood sugar levels, but with insulin levels. Since the consumption of more sugar results in the production of more insulin in non diabetic individuals, the increased risk of type 2 has to be related to wearing out the body's insulin production with the consumption of excess sugar. This would infer that any non diabetic who tests for a high white blood cell count and is thus at a higher risk for developing type 2 diabetes, must also be assumed to be a high consumer of sugars. In that case, his insulin response should warrant that high white blood cell count. By making insulin the factor for white blood cell count, those who were tested for a lower white blood cell count that did not develop diabetes must be assumed to not have had the sugar intake and thus the insulin response that would have warranted a high white blood cell count. This would naturally indicates less risk for

developing diabetes. This insulin application to WBC still lines up with the test regarding type 1 diabetes in which there is obviously no insulin response and thus low white blood cell count. The difference is that someone non diabetic with a low white blood cell count related to low insulin use has to do with necessity as a result of not needing to use much insulin for a lower sugar intake, as opposed to a type 1 diabetic whose low white blood cell count being indicative of no insulin having to do simply with just not being able to produce insulin, no matter how much sugar is consumed. This would also infer that sugar alone without being influenced by insulin would lower white blood cell count. In going back to how the activation of the HOXA5 gene, which inhibits cancer cell proliferation, is the result of Vitamin A (from beta carotene and needing the presence of sugar), we can infer that diabetes would lower the risk of some cancers. Researchers at the Norwegian University of Science and Technology and Trondheim University, found that after analyzing 1677 cases of lung cancer, the 1-, 2-, and 3-year survival in patients with lung cancer with and without diabetes mellitus were 43% versus 28%, 19% versus 11%, and 3% versus 1%, respectively. International Association for the Study of Lung Cancer. "Lung cancer patients with diabetes show prolonged survival." ScienceDaily. ScienceDaily, 18 October 2011. < [www.sciencedaily.com/releases/2011/10/111017092235.htm](http://www.sciencedaily.com/releases/2011/10/111017092235.htm)>. Since higher insulin is considered to raise the risk of colon cancer, the Vitamin A effect (that reactivates HOXA5 which subsequently inhibits the growth of tumor cells) must somehow revolve around slowing down the production of insulin. "In a study published by Morales-Oyarvide et al in the Journal of the National Cancer Institute, researchers found that patients with stage III colon cancer who had the highest "dietary insulin load"—the level of insulin produced by the body in response to diet—



were twice as likely to have a recurrence or die of the disease as patients with the lowest load. The trend held regardless of level of physical activity and was especially strong in patients who were obese, the researchers found.” -<https://www.ascopost.com/News/59006>. So, essentially, with higher insulin being such a strong factor in mortality from colon cancer, any alleviating effect, such as the vitamin A/HOXA5 activation process, has to relate to a reversal regarding this high insulin load. In order to make sense of Vitamin A via beta carotene reversing colon cancer, one has to conclude that the sugar/beta carotene/Vitamin A is needed to reduce insulin response in the body. Since insulin is usually released by the body in response to sugar, assessing the use of sugar to reduce insulin response is a contradiction. However, in a study done in 2016, researchers found that white blood cell count is lowered for a few hours(2 - 6) right after eating sweets. Source: Ullah H, Akhtar M, Hussain F. **Effects of Sugar, Salt and Distilled Water on White Blood Cells and Platelet Cells.** Journal of Tumor 2015; 4(1): 354-358 Available from: URL: <http://www.ghrnet.org/index.php/jt/article/view/1340>. So if we use that in conjunction with high insulin equating to high white blood cell count and thus poor prognosis for colon cancer, we can resolve the need for sugar and proper absorption of beta carotene (to turn into Vitamin A) as a total reversal of those causes for colon cancer to the fact that sugar temporarily lowers white blood cell count, and thus would temporarily lower insulin response and mortality for colon cancer. Diabetes, in this case, would reduce the risk of colon cancer only if insulin response is low. In some type 2 diabetes, while the insulin sensitivity is lowered(meaning cells are not absorbing sugar from the blood), the pancreas still produces a large amount of insulin into the blood stream. In that scenario, type 2 raises colon cancer risk.

If insulin sensitivity is lowered along with a lack of production of insulin by the pancreas then type 2 diabetes, in that case, would lower risk for colon cancer.

To summarize, we can conjure up how the sides of health line up with regard to white blood cells. Below is a layout we can logically extrapolate from the writings thus far. We have 2 sides that are fundamentally opposed to each other to the point that any factor from one side can oppose any factor from the other side. For example, Flu from side two of health would pose an oppositionary influence on Cancer from side one.

**Side one of health**

High white blood cell  
High blood insulin  
Cancer  
Gastro problems  
Vitamin E  
Sickle Cell Anemia  
Ebola-stage 2

**Side two of health**

Low White blood cell  
Low blood insulin  
Flu symptoms  
Vitamin A(beta  
carotene, sugar)  
Malaria

We can extrapolate that since vitamin E is on the side of higher white blood cells, vitamin E can disrupt any sickness related to flu-like symptoms(usually an indicator of over-assertion of Vitamin A(beta carotene)), but enhance any sickness related to gastrointestinal/blood vessel/blood thinning issues. If a factor from one side is presented to the body when another factor from that same side is already present, symptoms would worsen.

In using the information already formulated, we can transition to heart attacks and their side of health. In 2005, a nationwide study found

that Heart Attacks could be predicted by simply measuring white blood cell count. "As part of the federally supported Women's Health Initiative, investigators at medical centers all over the United States collected information on 72,242 postmenopausal women 50 to 79 years old. All were free of heart and blood vessel disease at the start of the study. During six years of follow-up, 1,626 heart disease deaths, heart attacks, and strokes occurred. Women with more than 6.7 billion white cells per liter of blood had more than double the risk of fatal heart disease than women with 4.7 billion cells per liter or lower. A count of 6.7 is considered to be in the upper range of normal, so what is "normal" may have to be redefined." Source: Harvard University. **"Simple Test Predicts Heart Attack Risk: White Blood Cells Sound A New Alarm."** ScienceDaily. ScienceDaily, 25 March 2005. <[www.sciencedaily.com/releases/2005/03/050323134019.htm](http://www.sciencedaily.com/releases/2005/03/050323134019.htm)>. From our previous extrapolation, this study would indicate that heart attacks would be placed on side one of health as shown in the diagram, meaning that any other factors on side one would increase and promote the chances of a heart attack, while the factors on side 2 would decrease it. In comparison to Heart Attacks, which occurs when blood flow to the heart is restricted enough to damage a part of the heart muscle, Cardiogenic Shock takes place when the heart muscle doesn't beat strong enough to pump adequate blood and oxygen. Since both implicate the heart, it becomes easy to place cardiogenic shock and heart attack on the same side of health. Studies, however, have shown that opposing factors to heart attacks tend to promote possible incidents of cardiogenic shock. The onset of Type 1 diabetes, which presents a low white blood cell count, has also been linked to sudden cardiac arrest from shock. Baden, M.Y., Imagawa, A., Iwahashi, H. et al. Diabetol Int (2016) 7: 281. <https://doi.org/10.1007/s13340-015-0247-6>.

Sepsis, which is an inappropriate immune response to an infection also linked to a low white blood cell count, raises the chances of cardiogenic shock. Because of the various nature of heart problems, I will have to align cardiac problems with blood pressure accordingly in order to make the distinction between high white blood cell count cardiac related issues and low white blood cell count cardiac related issues. This is done to make sense of sudden cardiac arrest taking place with hypertensive factors, and sudden cardiac arrest taking place with hypotensive factors. At the moment we can distinguish Heart attacks from Cardiogenic Shock, and link high blood pressure/high white blood cell to Heart attacks, and low blood pressure,/low white blood cell to Cardiogenic shock. This means that putting our body in a position to increase our chances of one should equate to decreasing our chances of the other. Statin drugs, which are used to lower cholesterol and are also found to lower blood pressure, has been said to reduce the effect of flu shots on the flu. The reason for this is that flu treatment has been found to raise blood pressure, which is opposite of what statins do. In theory, this would mean that raising blood pressure is a key component of fighting the flu, and not a side effect. This would align with our side one/side two layout on the other page if we put high blood pressure on one side of health while keeping flu on the other. It would also align with the hypothesis that any factor on one side can counteract a factor on the other. According to that layout, since statins lowers blood pressure, it would automatically promote flu symptoms because flu symptoms and low blood pressure would be on the same side of health. Since it's been found that white blood cell count is increased in hypertension, high blood pressure would have to go on the same side of health as high white blood cell count. Source: Judith A. Whitworth, **Relationship between white blood cell count and incident hypertension**, American Journal of

Hypertension, Volume 17, Issue 9, September 2004, Page 861, <https://doi.org/10.1016/j.amjhyper.2004.05.021>. Therefore, one can assess that the opposite would be the case in hypotension(lower blood pressure), which thus would put statins on the side of flu symptoms. Many have reported muscle pain and weakness in using statins, which are symptoms of the flu. Statins have been linked to higher blood sugars and heightened risk for diabetes, which are on the same health side of the flu. They have also been linked to depression, memory loss and suicide, which would likely put those qualities on the same side of flu. Here is an update to the layout of health.

**Side one of health**

High white blood cell  
High blood insulin  
High blood pressure  
Cancer  
Gastroproblems  
Vitamin E  
Sickle Cell Anemia  
Ebola-stage 2  
Heart Attack  
Happiness(high dopamine)

**Side two of health**

Low White blood cell  
Low blood insulin  
Low blood pressure  
Flu symptoms  
Vitamin A(beta carotene, sugar)  
Malaria  
Statins  
Cardiogenic shock  
depression(low dopamine)

To reiterate, the hypothesis is that every factor on one side can fight against any factor on the other. Depression fits on side two of health due to depression being reported with statin use. This lines up with how dopamine gets rid of depression and also how dopamine is used to reverse cardiogenic shock. Since vitamin D is also associated with elevated mood, which corresponds with a higher level of dopamine,

Vitamin D would also go on Side one. Magnesium, since it's linked to lower blood pressure, would go on side two. Calcium, which is held as an increased risk factor for cardiovascular events would go on side one. So, if we update the side one and side two with what we just mentioned, we began to get a better understanding of the body.

**Side one** of health

High white blood cell  
High blood insulin  
High blood pressure  
High cholesterol  
Cancer  
Gastroproblems  
Vitamin E  
Sickle Cell Anemia  
Ebola-stage 2  
Heart Attack  
Happiness(high dopamine)  
Vitamin D  
Calcium

**Side two** of health

Low White blood cell  
Low blood insulin  
Low blood pressure  
Low cholesterol  
Flu symptoms  
Vitamin A(beta carotene, sugar)  
Malaria  
Statins  
Cardiogenic shock  
depression(low dopamine)  
Magnesium

Everything on side one is essentially linked together and everything on side 2 is essentially linked together. Since Vitamin C and sugar have a similar structure, and Vitamin C has been found to lower cholesterol, Vitamin C would go on side two of health. Since vitamin K is an antagonist to vitamin E due to the fact that vitamin K is a blood clotter and vitamin E is a blood thinner, vitamin K would go on side two. Vitamin B12 has been linked to lung cancer and is a natural antagonist to Vitamin C. This would easily justify Vitamin B12 joining side one. Since vitamin c enhances Iron absorption, Iron would go on side two. Since Iron disrupts Zinc absorption, Zinc would go on Side one. Here is another update of side one and side two on the next page.

A quick note about magnesium tablets. Chewing magnesium tablet (250mg) seems to deter nausea symptoms related to an imminent bout of vomiting.

**Side one of health**

High white blood cell  
High blood insulin High  
blood pressure High  
cholesterol Cancer  
Gastroproblems  
Vitamin E  
Sickle Cell Anemia  
Ebola-stage 2  
Heart Attack  
Happiness(high  
dopamine)  
Vitamin D  
Calcium  
Vitamin B12  
Zinc

**Side two of health**

Low White blood cell  
Low blood insulin  
Low blood pressure  
Low cholesterol  
Flu symptoms  
Vitamin A(beta  
carotene, sugar)  
Malaria  
Statins  
Cardiogenic shock  
depression(low  
dopamine)  
Magnesium  
Vitamin C  
Vitamin K  
Iron

More research into the links between vitamin/minerals and sickness would provide an even more comprehensive outlook regarding side one and side two of health. If we try to pin alcohol consumption and caffeine consumption on either side of the list, we run into problems. In many studies alcohol consumption has been linked with lower white blood cell count(**Association of alcohol consumption with white blood cell count: a study of Japanese male office workers** N. Nakanishi, H. Yoshida, M. Okamoto, Y. Matsuo, K. Suzuki, K. Tatara <https://doi.org/10.1046/j.1365-2796.2003.01112.x>), while caffeine has been linked with higher white blood cell count(**Effect of caffeine supplementation on haematological and biochemical variables in elite soccer players under physical stress conditions** Adriana Bassini-Cameron, Eric Sweet, Altamiro Bottino, Christina Bittar, Carlos Veiga, and Luiz-Claudio Cameron doi:

10.1136/bjism.2007.035147). The issue is that caffeine depletes calcium levels in the body, and calcium is a supporter of high white blood cell count, according to the side one and side two of health. In tandem with the study that caffeine raises white blood cell count, caffeine becomes both an antagonist and supporter of factors on the same side of the list(in this case Calcium and high white blood cell count respectively). In contrast and according to my logic based on side one/side two of health, caffeine would actually lower white blood cell count, while alcohol would raise white blood cell count. In order to make this true and line up with side one and two of health appropriately, we have to associate factors that take place AFTER these drugs(alcohol and caffeine) have been used and released from the body.....as the standard side effect of the actual drugs. Meaning, the symptoms that arise after alcohol or caffeine has left the blood stream or is leaving the blood stream, should be the deciding factor for the implications of its use. Since calcium is depleted as urine and feces eliminates caffeine from the body, calcium deficiency and its corresponding characteristics would be lined up with caffeine. Since calcium deficiency points to low mood, which points to low dopamine, caffeine would correlate to side two of health. In a study done about the effects of alcohol withdrawal on the brain, scientists found that after the drop in dopamine during a brief period of abstinence after alcohol consumption, a sharp rise in excessive dopamine ensues as the period of abstinence becomes longer. Even though this rise coincides with less receptivity to dopamine, it nonetheless results with more dopamine being in the blood stream. This state is called a hyperdopaminergic state. Source: **Hyperdopaminergic state in alcoholism** Natalie Hirth, Marcus W. Meinhardt, Hamid R. Noori, Humberto Salgado, Oswaldo Torres-Ramirez, Stefanie Uhrig, Laura Broccoli, Valentina Vengeliene, Martin Roßmanith, Stéphanie Perreau-Lenz, Georg Köhr, Wolfgang H.



Sommer, Rainer Spanagel, Anita C. Hansson Proceedings of the National Academy of Sciences Feb 2016, 201506012; DOI: 10.1073/pnas.1506012113. One can hypothesize that during this hyperdopaminergic state of hyperactivity, white blood cell count would rise considerably and so would blood pressure, along with all of its correlated factors. This outcome would have to be standard for defining alcohol's effect on the body in order to make it fit the appropriate side of health, which would be side one. In essence, and hypothetically, alcohol would be able to fight flu symptoms, while caffeine would fight gastro/nausea issues. In support of alcohol fighting flu symptoms, Dr. William Schaffner, chair of preventive medicine at Vanderbilt University Medical Center, told ABC News in 2018: "The alcohol dilates blood vessels a little bit, and that makes it easier for your mucus membranes to deal with the infection," Source: **Drinking A Little Whiskey Might Actually Help Relieve Cold Symptoms** – by Kate Bratskier of HuffPost. However, to be better in line with side one and side two of health, I would have to conclude that alcohol's constriction of blood vessels would make more sense as a mitigator of cold symptoms. Decongestants, which are a standard for fighting the cold or flu, raises blood pressure. So, therefore, alcohol would have to align with those factors in order to fully comply with side one and side two of health (high blood pressure being on the opposite side of the flu and therefore an antagonist to flu symptoms) and also prevailing medicinal determinants. This opens the door for caffeine to antagonize things like high blood pressure, high white blood cell count, and gastro/nausea problems. There have been studies that link to coffee to lower blood pressure. While it is well known that coffee would raise blood pressure during intake, determining factors after coffee is used and released by the body....

as the actual outcome of coffee.... allows us to makes sense of coffee's lowering of blood pressure due to a depletion of calcium. According to Webmd, "Calcium channel blockers are drugs used to lower blood pressure. They work by slowing the movement of calcium into the cells of the heart and blood vessel walls, which makes it easier for the heart to pump and widens blood vessels. As a result, the heart doesn't have to work as hard, and blood pressure lowers." Source: WebMD Medical Reference Reviewed by James Beckerman, MD, FACC on October 10, 2017. This allows us to make perfect sense of how studies would find that coffee(caffeine antagonism to calcium) would reduce blood pressure. Example: Habitual coffee consumption and blood pressure: an epidemiological perspective. Geleijnse JM1. PMID:19183744 PMCID:PMC2605331 DOI: 10.2147/vhrm.s3055. More studies support coffee lowering blood pressure. "Researchers at the Preventative and Clinical Investigations Center in Paris, France observed the blood pressure of almost 200,000 men and women between the ages of 16 and 95 for 10 years and recorded their blood pressure, pulse pressure, and heart rate. The findings revealed that those who avoided coffee and tea consumption all together had the highest rates of blood pressure, pulse pressure, and heart rate. And, those who drank tea the most often had the best health reports. Even coffee drinkers fared better than those who didn't drink coffee at all." Source: Caffeine From Tea And Coffee Lowers Blood Pressure: Researchers Say 4 Cups A Day Does The Deed by Samantha Olsen of [www.medicaldaily.com](http://www.medicaldaily.com). We can update our side one and side two of health with alcohol and caffeine on the next page.

**Side one of health**

High White blood cell  
 High blood insulin  
 High blood pressure  
 High cholesterol  
 Cancer  
 Gastroproblems  
 Vitamin E  
 Sickle Cell Anemia  
 Ebola-stage 2  
 Heart Attack  
 Happiness(high dopamine)  
 Vitamin D  
 Calcium  
 Vitamin B12  
 Zinc  
 alcohol

**Side two of health**

Low White blood cell  
 Low blood insulin  
 Low blood pressure  
 Low cholesterol  
 Flu symptoms  
 Vitamin A(beta carotene,  
 sugar)  
 Malaria  
 Statins  
 Cardiogenic shock  
 depression(low dopamine)  
 Magnesium  
 Vitamin C  
 Vitamin K  
 Iron  
 caffeine

Chemotherapy which is a treatment used to fight cancer, involves a number of side effects like flu symptoms, low white blood cells, low blood pressure. Upon observing side two of health, one can notice that many of those side effects that relate to Chemotherapy are found in many of the elements of side two. Vitamin observation also applies here. For instance, chemotherapy has been also known to raise the chances blood clot formation and when observing side two of health, we can see that Vitamin K, which activates our bodies' blood clotting mechanism, affirms that diagnostic. Because Cancer would obviously be on the opposite side of Chemotherapy, on Side one, chemotherapy becomes a potential treatment to fight against all things related to side one of health.....not just cancer, but heart disease, Ebola, sickle cell anemia, high blood pressure, high cholesterol. Upon research, we find that chemotherapy drugs have been used with some success against the aforementioned. However, Chemotherapy has been linked to high cholesterol, which wouldn't make sense on our health layout. Further

research shows that this cannot be resolved to high cholesterol on side one and low cholesterol on side two of health. This indicates a need for a change to be made. High cholesterol on the side one of health would have to be changed to High HDL Cholesterol, while Low Cholesterol on side two would have to be changed to Low HDL Cholesterol. HDL cholesterol is what's considered good cholesterol. Low LDL(bad cholesterol) would have to be placed on side one, with High LDL placed on side two. This would align with studies that places low LDL as a cancer risk, and higher LDL as a symptom of chemotherapy. Doing this essentially would link beta carotene, vitamin A, C, and K to high LDL, high triglycerides. As confusing as that seems, it would actually explain why vegans are getting high LDL counts in blood tests. So this is what our updated layout of side one and side two of health would look like:

<b>Side one</b> of health	<b>Side two</b> of health
High white blood cell	Low White blood cell
High blood insulin	Low blood insulin
High blood pressure	Low blood pressure
High HDL cholesterol (good cholesterol)	Low HDL cholesterol (good cholesterol)
Low LDL cholesterol (bad cholesterol)	High LDL cholesterol (bad cholesterol)
Cancer	High Triglycerides
Gastroproblems	Flu symptoms
Vitamin E	Vitamin A(beta carotene, sugar)
Sickle Cell Anemia	Malaria
Ebola-stage 2	Statins
Heart Attack	Cardiogenic shock
Happiness(high dopamine)	depression(low dopamine)
Vitamin D	Magnesium
Calcium	Vitamin C
Vitamin B12	Vitamin K
Zinc	Iron
Alcohol	Caffeine
Blood thinning	Chemotherapy
	Blood clot

So now we can look for evidence that Chemotherapy is an antagonist to side one of health and a promoter of factors on its own side, side two. Metabolic syndrome, which is a combination of biochemical abnormalities associated with cardiovascular problems, was found to be increased amongst survivors of cancer after chemotherapy treatment.

Source: **Metabolic syndrome induced by anticancer treatment in childhood cancer survivors** Hee Won Chueh, MD, PhD Jae Ho Yoo, MD, PhD Ann Pediatr Endocrinol Metab. 2017 Jun; 22(2): 82–89.

In order to avoid confusion, a clear distinction needs to be made between heart attack on side one and blood clot problems on side 2, which leads to heart attack. Heart attack on side one relates to cardiovascular disease and side two relates to circulation problems. Embolism would be a better way to describe a cardiac event on side two. I think heart problems and blood clots are used interchangeably since blood clots cut off oxygen to the heart, which causes heart attacks. Therefore, it can be confusing when reading medical terminology and deciphering what is meant by heart attack. Vegans are known to be at risk for blood clots, while simultaneously being protected from cardiovascular disease. That in itself infers that blood clotting mechanisms, such as the ones invoked by Vitamin K, actually fights off cardiovascular disease. So, metabolic syndrome arising from chemotherapy must relate to clotting factors. According to the layout, High LDL must also relate to clotting issues and not cardiovascular disease. More research is coming forth that LDL cholesterol is not actually linked to heart disease. Source: **LDL-C does not cause cardiovascular disease: a comprehensive review of the current literature** Uffe Ravnskov, Michel de Lorgeril, David M Diamond, Rokuro Hama, Tomohito Hamazaki, Björn Hammarskjöld, Niamh Hynes, Malcolm Kendrick, Peter H Langsjoen, Luca Mascitelli, Kilmer

S McCully, Harumi Okuyama ORCID Icon, Paul J Rosch, Tore Schersten, Sherif Sultan & Ralf Sundberg Published online: 11 Oct 2018. This possibly opens the door to also hypothesize that high LDL can fight cancer. In fact, Lower LDL cholesterol has been found to be a cancer risk. Source: American College of Cardiology. **"Low LDL cholesterol is related to cancer risk."** ScienceDaily. ScienceDaily, 26 March 2012. < [www.sciencedaily.com/releases/2012/03/120326113713.htm](http://www.sciencedaily.com/releases/2012/03/120326113713.htm)>. This aligns perfectly with the layout of side one and side two of health as high LDL cholesterol is on the opposite side of Cancer. We do, however, run into issues with the proper placement of Statins. Since statins are known to lower LDL cholesterol, it cannot be placed on the same side as high LDL cholesterol. If we move statins to side one of health, it would make statins a supporter of cancer and high HDL cholesterol, but a fighter against the flu and malaria. Here would be the new layout with statins now on side one of health:

**Side one** of health

High white blood cell  
High blood insulin  
High blood pressure

High HDL cholesterol  
(good cholesterol)

Low LDL cholesterol  
(bad cholesterol)

Cancer  
Gastroproblems  
Vitamin E  
Sickle Cell Anemia  
Ebola-stage 2  
Statins

*cont'd next pg*

**Side two** of health

Low White blood cell  
Low blood insulin  
Low blood pressure

Low HDL cholesterol  
(good cholesterol)

High LDL cholesterol  
(bad cholesterol)

High Triglycerides  
Flu symptoms  
Vitamin A(beta carotene,  
sugar)  
Malaria  
Cardiogenic shock  
depression(low dopamine)

*cont'd next pg*

<i>cont'd</i>	<i>cont'd</i>
Heart Attack (heart disease)	Heart attack (embolism)
Happiness(high dopamine)	Magnesium
Vitamin D	Vitamin C
Calcium	Vitamin K
Vitamin B12	Iron
Zinc	Caffeine
Alcohol	Chemotherapy
Blood thinning	Blood clot

Statins as a fighter against depression still poses an issue as statins have been known to cause depression. Because statins, in this layout, would support heart attacks from heart disease, the prevention of heart attacks related to the use of statins must be associated with the formation of blood clots related to embolisms. Since statins have been found to lower blood clot risk, we can imply the hypothesis that statins only relates to fighting against heart attacks arising from that, and not from heart disease. Source: Setor K Kunutsor, Samuel Seidu, Kamlesh Khunti. **Statins and primary prevention of venous thromboembolism: a systematic review and meta-analysis.** The Lancet Haematology, 2017; DOI: 10.1016/S2352-3026(16)30184-3. The study that showed high LDL isn't linked to cardiovascular disease supports the idea that statins wouldn't prevent heart disease as shown on side one of health.

The formation of health aspects into two sides allows for health philosophy to make sense of complex factors regarding the different types of things we consume and the treatment protocols we follow. By dividing health aspects like this, one may find it easier to map out treatment protocols from a determined blueprint.

.....See Ch 27 Appendix for continuation of this chapter

***Ch 27 Appendix: COVID-19  
and Bio-Agent factors  
applied to Chapter 27***

***(Anthrax, Plague, Botulism)  
factors, and chemical  
elements embedded into that  
framework***



Ch. 27 Appendix : COVID-19 and Bio-Agent factors applied to Chapter 27

*Based on the World War II analogy described in Chapter 27 of Ares Le Mandat that deduces overall health to 2 opposing sides*

Hydroxychloroquine, Vitamin D, blood thinners, and Remdesivir's effectiveness against COVID-19 have a common link

Numerous studies were conducted to see if Hydroxychloroquine could be considered as an effective treatment for COVID-19. The inquiry eventually garnered the attention of United States President Donald Trump. However, after a number of people have been reported to experience serious adverse side effects, the general consensus has--as a result--turned largely pessimistic about Hydroxychloroquine's effectiveness. The reason I considered the recommendation of a malaria drug as solid reasoning is based on my research in making sense of how overall health is divided mainly into two opposing sides. This is explained in Chapter 27 of Ares Le Mandat. The lineup of symptoms, vitamins, and minerals on one side can each fight against the symptoms, vitamins and minerals of the other side. My reasoning infers that because Vitamin E is designated to side one of health in Chapter 27, while flu is designated to side two, Vitamin E can easily be nominated as a candidate for treatment of anything flu-like(I infer COVID-19 as a flu-like illness). Because it's hypothesized that anything on side one can fight against anything on side two, theoretically-as a result of that-any symptom, vitamin or mineral from side one is a contender to fight against any symptom, vitamin or mineral on side two. Judging from the way the components(symptom, vitamin or mineral) of each side is allocated-with high insulin on side one versus both flu and malaria on side two(see pg 533-534 of Chapter 27 of Ares Le Mandat)-Hydroxychloroquine with its high insulin/hypoglycemic side effect becomes a solid proposal in the fight against COVID-19. After reading about the fatal cases pertaining to Hydroxychloroquine use, I learned that the adverse effects mirrored strongly the adverse affects of extreme hypoglycemia and insulin overdose which both normally end in cardiac arrest. This is not the case for all reported treatments of COVID-19 with Hydroxychloroquine. Hydroxychloroquine has been found effective in some studies. Treatment with Hydroxychloroquine cut the death rate significantly in sick patients hospitalized with COVID-19 – and without heart-related side-effects, according to a new study published by Henry Ford Health System. [https:// www.henryford.com/ news/ 2020/07/hydro-treatment-study](https://www.henryford.com/news/2020/07/hydro-treatment-study)

What Hydroxychloroquine does-in terms of how it applies to the Chapter 27 perspective-is draw from the high insulin component of side one and uses that to fight against the components of side two. Furthermore, it should not be surmised that this infers for a component of one side to be without problems should it be administered beyond what is necessary for treatment. This is happening with use of Hydroxychloroquine in some cases. A good analogy is drinking not just enough water just to satisfy one's thirst, but drinking too much to not only satisfy one's thirst but also go overboard and at the same time bring oneself to water intoxication. In this, one can understand such a scenario doesn't discount water altogether as an effective treatment for thirst. The key for any further research on Hydroxychloroquine would be in understanding the individual patient's initial level of insulin and administering based on that in order to circumvent the dangers of the hypoglycemia/high insulin overdose symptom of Hydroxychloroquine's adverse effects.

Moreover, what Chapter 27 of Ares Le Mandat does is show why there is more than one effective method to fight COVID-19 or any other disease.

Another example that affirms the side 1/side 2 layout of health described in Chapter 27 of Ares Le Mandat are the promising results that Vitamin D has shown in coronavirus research. Studies performed by Michael F. Holick--a professor of physiology, medicine and molecular medicine and biophysics at Boston University School of Medicine--found that COVID-19 patients over 40 who had sufficient Vitamin D levels were 51% less likely to die from the virus. It was also concluded that anyone who had sufficient levels of Vitamin D in his system had a reduced risk of catching the virus by 54%. Pages 533 and 534 of Chapter 27 of Ares Le Mandat has Vitamin D lined up on the same side of health as high insulin, which was the effect of Hydroxychloroquine protocols used to fight COVID-19. This further affirms the outlook of 2 opposing sides of health.

The success of blood thinners in treating COVID 19 also affirms the side 1/side 2 layout of health described in Chapter 27 of Ares Le Mandat. An observational study done by researchers at Mount Sinai

in New York found that hospitalized COVID-19 patients who took blood thinner prescriptions had a 50% reduced risk of death. They also checked autopsy records from COVID-19 patients at Mount Sinai and found that 11 of 26 patients had blood clots in the lungs, brain and heart that weren't detected in the hospital. (<https://www.webmd.com/lung/news/20200827/blood-thinners-may-increase-covid-survival-rates>) Scientists at Rensselaer Polytechnic Institute discovered the effectiveness of blood thinners in neutralizing the coronavirus. They found that the blood thinner heparin was effective in keeping the virus from infecting healthy cells. (<https://www.fiercebiotech.com/research/how-covid-19-could-be-crippled-by-age-old-blood-thinner>) The studies concerning blood thinners as an effective treatment justifies the Vitamin E proposal since it also has blood thinning properties. Pages 533 and 534 of Chapter 27 of Ares Le Mandat has blood thinning lined up on the same side of health as Vitamin D and high insulin.

On October 2, 2020, the US President announced that he and the First Lady tested positive for Covid-19. He was placed on a five-day course of treatment with remdesivir, an antiviral drug manufactured by drug maker company Gilead Sciences. One can gather from information regarding the side effects of remdesivir that remdesivir is also drawing from the side 1 of health explained in Chapter 27 of Ares Le Mandat, specifically from the gastroproblems that has been set as antagonistic to flu-like illnesses. The most common side effect discovered in patients treated for COVID-19 using remdesivir was nausea. This, according to the thesis outlined in Chapter 27 of Ares Le Mandat, makes remdesivir a solid proposal against the coronavirus. In a 600-patient analysis, published by the Journal of the American Medical Association, the study in moderately ill COVID-19 patients showed that 11 days after starting treatment--65% of the 10-day remdesivir patients, 70% of the 5-day patients and 60% of the standard care patients had left the hospital. "Side effects seen more frequently in the remdesivir groups included nausea, low blood potassium levels, and headache." (<https://www.reuters.com/article/us-health-coronavirus-remdesivir/gilead-fda-could-expand-remdesivir-use-despite-mixed-data-idUSKBN25H2CT>) Pages 533 and 534 of Chapter 27 of Ares Le Mandat has gastro problems lined up on the same side of health as

## Ch. 27 Appendix : COVID-19 and Bio-Agent factors applied to Chapter 27

blood thinning, Vitamin D, and high insulin.

This thesis of overall health being divided mainly into two opposing sides makes sense of how Hydroxychloroquine(high insulin effect), Vitamin D, blood thinners, and remdesivir(gastroproblem effect) are all effective against the coronavirus (COVID-19). This allows us to continue to build the list and allocate appropriately.

*-taken from pages 533 and 534 of Chapter 27 of Ares Le Mandat and modified with new additions in **bold***

Side one of health	Side two of health
High white blood cell	Low White blood cell
High blood insulin	Low blood insulin
High blood pressure	Low blood pressure
High HDL cholesterol (good cholesterol)	Low HDL cholesterol (good cholesterol)
Low LDL cholesterol (bad cholesterol)	High LDL cholesterol (bad cholesterol)
Cancer	High Triglycerides
Gastroproblems	Flu symptoms
VitaminE	Vitamin A(beta carotene, sugar)
Sickle Cell Anemia	Malaria
Ebola-stage 2	Cardiogenic shock depression(low dopamine)
Statins	Heart attack (embolism)
Heart Attack (heart disease)	Magnesium
Happiness(high dopamine)	VitaminC
Vitamin D	VitaminK
Calcium	Iron
VitaminB12	Caffeine
Zinc	Chemotherapy
Alcohol	Blood clot
Blood thinning	<b>Potassium</b>
<b>Sodium</b>	<b>COVID-19</b>
<b>Hydroxychloroquine</b>	
<b>Remdesivir</b>	
<b>Elevated liver enzymes</b>	
<b>Heparin</b>	

*The hypothesis is that anything related to the causes and symptoms of side one can fight against anything related to the symptoms and causes of side two. Metaphorically, side one could be the allied powers and side two could be the axis powers*

On the previous page, the aforementioned medical and health components that were factored into COVID-19 treatment possibilities during the year 2020 by various research institutions was added to the list that's displayed in Chapter 27 of Ares Le Mandat: Hydroxychloroquine, Remdesivir, and Heparin. Other components like elevated liver enzyme count, sodium, potassium, and COVID-19 were also added to the list and allocated appropriately: elevated liver enzyme count & sodium on side one and potassium & COVID-19 on side 2. Making a decision on where to situate sodium and potassium was a complicated matter, but after making judgments based on factors mentioned in studies regarding flu medications and their effect on raising blood pressure along with factors described in the study of redesivir treatments that link remdesivir to side effects of low potassium, I resolved to place sodium on side one with remdesivir as an ally in the fight against the components of side two. This automatically relegates potassium to side two. With potassium known to lower overall blood pressure and aid blood clotting mechanisms, it becomes justified to observe potassium as an ally of COVID-19 and a member of side two. The difficulty in making this decision came from observing studies by scientists at the National Cancer Institute's Center for Cancer Research that found that tumor cells rely on potassium in order to evade killer t cells. "In experiments with both mouse and human tumors, Restifo's team, including NCI surgical oncology research fellow Robert Eil (now at Oregon Health and Sciences University), found the fluid that fills the space between tumor cells can contain high levels of potassium, an ion that is usually concentrated inside cells." This extracellular fluid containing potassium was found to be immunosuppressive. This would imply that potassium is an ally of cancer and would thus contradict the thesis of potassium(side two) being on the opposing side of cancer(side one). However a study done by Jansson B. entitled "Potassium, sodium, and cancer: a review" affirmed that as potassium leaves the cells and sodium enters, the rate of cancer increases. The article states that "Patients with hyperkalemic diseases (Parkinson, Addison) have reduced cancer rates, and patients with hypokalemic diseases (alcoholism, obesity, stress) have increased cancer rates." This finding helps us infer that sodium is a carcinogenic agent and a contributor to cancer, and thus properly placed on side one on the lists presented in Chapter 27 of Ares Le Mandat. Please note hyperkalemic is abnormally elevated potassium while hypokalemic is abnormally reduced potassium. To resolve the contradiction between the studies, I could infer that potassium--as an antagonist to the carcinogenic agent

sodium--is seen by the killer t-cells as an ally(or as doing the same job) which would thus avert or delay the killer t-cell response. As long as potassium is present, it will always attempt to antagonize sodium even as it's pushed out by increasing sodium levels in the cells and this in itself is an anti-tumor operation by the potassium. Human tumor cells contain significantly more sodium than it does potassium. A study of human tumors from 10 cancer patients with the cancers classified in three types: keratinizing, transitional cell, and hypernephroid carcinoma ....and compared with patients that have no malignant cancerous processes revealed that in all three types of cancer cells, the average intranuclear sodium content increased more than three-fold, while the potassium content decreased 32, 16, and 13%, respectively. (Source: Nagy IZ, Lustyik G, Nagy VZ, Zarándi B, Bertoni-Freddari C. Intracellular Na+:K+ ratios in human cancer cells as revealed by energy dispersive x-ray microanalysis. *J Cell Biol.* 1981;90(3):769-777. doi:10.1083/jcb.90.3.769)

Another component that can be added to the list appropriately is vitamin b1, also known as Thiamine. Thiamine is a natural micro-nutrient found in whole grains, meat, and fish. In my research and personal testing--having experienced symptoms of constipation and stringy stool--I found that much of my relief from those symptoms came immediately after consuming white rice(with coffee) or powdered dairy creamer(with coffee). Further research allowed me to deduce such an effect to a likely Thiamine antagonist since milled products like white rice and many powders have been implicated as causes of Thiamine deficiency. When coffee--a natural thiamine antagonist--is combined with a low thiamine source as a result of being processed through a milling system, the relief from constipation/stringy stool is heightened. While it's understood that coffee on its own will outcome such an effect, I found that in combination with low thiamine processed products like white rice, the coffee diuretic effect is more pronounced. Because the aforementioned symptoms--constipation/stringy stool--mirror those of rectal cancers, I hypothesize that Thiamine antagonists can fight rectal cancer symptoms, while Thiamine itself would be a contributor to the disease and thus be assigned to side one of the list layout in Chapter 27 of Ares Le Mandat. The milling process used on brown rice to remove the rice's husk, bran, and germ depletes 43-92% of their vitamin B1. However this lower amount of thiamine in white rice doesn't explain a depletion of thiamine upon consuming white rice. There has to be a

mechanism in white rice responsible for the depletion of thiamine upon consumption. After further research and finding out that both brown rice and white rice contain arsenic, I've gathered that the thiamine content in the bran, husk, and germ in brown rice antagonizes arsenic, while the removal of those components (bran, husk, and germ) in order to process white rice causes arsenic to override the thiamine content in white rice. Basically, even though the arsenic content in brown rice is higher than that contained in white rice, the bran/husk/germ of brown rice contains enough thiamine to keep the effect of arsenic suppressed. There is essentially a higher thiamine-to-arsenic ratio in brown rice than there is in white rice. White rice--in contrast--would have a lower thiamine-to-arsenic ratio, even though there is both less thiamine and arsenic in white rice. Therefore the arsenic in white rice is low enough to not cause toxicity but high enough (in terms of its ratio to thiamine) to effectuate a thiamine deficiency. Thiamine deficiency has also been linked to malaria, which is located on our side two of health. The Lancet, an open access journal, published an article in 1999 about a study performed in Thailand that revealed that acute thiamine deficiency can mimic many complications of malaria. (VOLUME 353, ISSUE 9152, P546-549). This would link thiamine deficiency and arsenic to malaria and further justify thiamine to side one of health. Thiamine antagonists and even arsenic would then be relegated to side two of health. Now we can hypothesize that arsenic, since it's on side two, can help fight cancer, which is on side one. In 2010, researchers at Stanford University found that treating mice that have a certain type of brain tumor with arsenic trioxide slowed or stopped tumor growth. Philip Beachy, PhD, professor of developmental biology and the Ernest and Amelia Gallo Professor in the School of Medicine, is the senior author of the new findings about arsenic, published online in the Proceedings of the National Academy of Sciences July 12.

On the next page, here is what the side one and side two of Chapter 27 of Ares Le Mandat now looks like with Arsenic and Thiamine allocated appropriately:

Ch. 27 Appendix : COVID-19 and Bio-Agent factors applied to Chapter 27

Side one of health  
High white blood cell  
High blood insulin  
High blood pressure  
High HDL cholesterol  
(good cholesterol)  
Low LDL cholesterol  
(bad cholesterol)  
Cancer  
Gastroproblems  
VitaminE  
Sickle Cell Anemia  
Ebola-stage 2  
Statins  
Heart Attack  
(heart disease)  
Happiness(high  
dopamine)  
Vitamin D  
Calcium  
VitaminB12  
Zinc  
Alcohol  
Blood thinning  
**Sodium**  
**Hydroxychloroquine**  
**Remdesivir**  
**Elevated liver enzymes**  
**Heparin**  
**Thiamine**

Side two of health  
Low White blood cell  
Low blood insulin  
Low blood pressure  
Low HDL cholesterol  
(good cholesterol)  
High LDL cholesterol  
(bad cholesterol)  
High Triglycerides  
Flu symptoms  
Vitamin A(beta carotene, sugar)  
Malaria  
Cardiogenic shock  
depression(low dopamine)  
Heart attack  
(embolism)  
Magnesium  
VitaminC  
VitaminK  
Iron  
Caffeine  
Chemotherapy  
Blood clot  
**Potassium**  
**COVID-19**  
**Arsenic**

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page



Now we can further expound on this list and foray into a vast array of other components that are ever present in our life processes. By observing the layout and the components that comprise both sides, we can begin to more easily surmise where other forms, substances, particles, nutrients, vitamins, minerals, and symptoms would fit. For example, since Vitamin D and cancer is on side one, we can presume that sunlight itself would go on side one. In building upon that, we can also add radiation to side one. The side effect of nausea, bruising, and bleeding that goes with radiation exposures affirms its link to the blood thinning and gastro problem components on side one. Confusion regarding this allocation may arise from the fact that radiation treatment has been used to treat certain cancers. Radiation works by damaging the DNA of the cancer cells—thus keeping them from replicating. This eventually causes both the cancer cells and the non-cancer cells to die. This outcome doesn't necessitate that a reactivation of anti-tumor mechanisms within the body took place, which if should be the case(that no reactivation of anti-tumor mechanisms took place) then such would only increase the chances of a recurrence should some of the cancer cells survive the radiation therapy. With this outlook, radiation can be placed on side one as an ally of cancer.

Bio-terrorism, which is another deep concern, is when various forms of bacteria or contagious diseases become weaponized with the intent of being used to inflict widespread harm on a given sector of the population. Three possible bio-terrorism agents that have been a concern in the west are Anthrax, Ebola, and Small-pox. Earlier back in Chapter 27 of *Ares Le Mandat*, I made an analysis on which side of health Ebola could be designated. After researching the stages of Ebola-- with initial symptoms being flu-like and later symptoms being more gastro related—I came to a consensus that the later stage of Ebola symptoms (which are gastro related)should go on side one. Coincidentally, the heavy bleeding which occurs at the later stages of Ebola is another reason it fits on side one; blood thinning is on side one. Also, the elevated white blood cell count or leukocytosis that damages blood vessels by constantly tearing holes in blood vessel walls further affirms the designation; high white blood cell count is on side one. All of these allow for Ebola's later stages(or stage 2) to be a good fit for side one. This course of disease progression is very similar to the stages that occur with anthrax inhalation. Initial symptoms of anthrax inhalation are flu- like symptoms. Later symptoms are

gastro/bleeding related. The big difference between Ebola and Inhalation anthrax is the white blood cell count. In Ebola, it's common for patients to develop leukocytosis, an abnormally high white blood cell count. In anthrax inhalation, patients have been found to have a lower white blood cell count with the gastroenteritis that arises in the later stage. Studies have found that a toxin in anthrax is able to paralyze the white blood cells and thus keep them from fighting the infection. In terms of our list, this complicates the allocation process for anthrax. Its inhibition of blood clotting and manifestation of gastro symptoms align with components on side one. However, based on our thesis, those problems mentioned would bring with them some measure of increased white blood cell count(high white blood cell count is also on side one), but that is seemingly not the case with inhalation anthrax. However, in a 2001 CDC(Centers for Disease Control) interview with acting deputy director of CDC's National Center for Infectious Diseases Dr Julie Gerberding, she states "We know from the cases that have been reviewed so far, that most of the patients with inhalation anthrax had high white blood cell counts, or indications of acute inflammation on their white cell count, and perhaps more importantly, none of the patients had a low white cell count, or an increase in the number of lymphocytes." If this is the case then Inhalation anthrax(stage 2) would go on side one with Ebola stage 2. So therefore, in both cases of Ebola and Anthrax inhalation, we can say that the white blood cells are being temporarily paralyzed at the flu stage, which is thus causing a subsequent over-reactive avalanche of WBCs when that flu stage ends.....leading to the effects of symptoms like bleeding and gastroenteritis and eventual respiratory failure. It's important to note that hypotension has been documented in a number of inhalation anthrax cases. Hypotension is low blood pressure and is not on side one where inhalation anthrax(stage 2) would be. It's on side two. Our thesis would infer that hypertension(high blood pressure) would be linked to inhalation anthrax on side one. High blood pressure is on side one. To resolve this, we have to infer that the dyspnea and diaphoresis that comes from anthrax inhalation is hypertensively(possible pulmonary hypertension) induced and the subsequent progressive loss of oxygen is the reason for the hypotension that takes place near death from anthrax inhalation.

On the next page, here is what the side one and side two of Chapter 27 of Ares Le Mandat now looks like with Radiation and Inhalation Anthrax allocated appropriately:

Ch. 27 Appendix : COVID-19 and Bio-Agent factors applied to Chapter 27

Side one of health	Side two of health
High white blood cell	Low White blood cell
High blood insulin	Low blood insulin
High blood pressure	Low blood pressure
High HDL cholesterol (good cholesterol)	Low HDL cholesterol (good cholesterol)
Low LDL cholesterol (bad cholesterol)	High LDL cholesterol (bad cholesterol)
Cancer	High Triglycerides
Gastroproblems	Flu symptoms
VitaminE	Vitamin A(beta carotene, sugar)
Sickle Cell Anemia	Malaria
Ebola-stage 2(gastro symptoms)	Cardiogenic shock
Statins	depression(low dopamine)
Heart Attack (heart disease)	Heart attack (embolism)
Happiness(high dopamine)	Magnesium
Vitamin D	VitaminC
Calcium	VitaminK
VitaminB12	Iron
Zinc	Caffeine
Alcohol	Chemotherapy
Blood thinning	Blood clot
<b>Sodium</b>	<b>Potassium</b>
<b>Hydroxychloroquine</b>	<b>COVID-19</b>
<b>Remdesivir</b>	<b>Arsenic</b>
<b>Elevated liver enzymes</b>	<b>Ebola-stage 1(flu symptoms)</b>
<b>Heparin</b>	<b>Inhalation Anthrax-stage 1(flu symptoms)</b>
<b>Thiamine</b>	
<b>Radiation</b>	
<b>Inhalation Anthrax-stage 2(gastro symptoms)</b>	
<b>Sun</b>	

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page

Another toxin that ranks high on the list of possible bioterror agents is the Botulinum toxin that causes Botulism. It is obtained from bacteria called *Clostridium botulinum*. Botulism operates in the body by attacking neurotransmitters, causing symptoms such as nerve damage, paralysis, and eventual respiratory failure and death. Other symptoms are difficulty speaking, seeing, and swallowing along with drooping eyelids. There is also muscle weakness starting in the trunk and then moving to the limbs before an eventual muscle paralysis and difficulty breathing kicks in. The most common initial symptom is constipation and for foodborne botulism—dizziness and nausea. These come before the later muscle weakness and neurological problems. Botulism is spread by either aerosol or food. “Botulinum toxin is 15,000 times as toxic as the nerve agent VX, and 100,000 times more toxic than sarin.”, according to a study done by Jan Glarum, Don Birou, and Edward CetarukMD entitled *Assessment of Likely Mass Casualty Events and Potential Hospital Impact* <https://doi.org/10.1016/B978-1-85617-701-6.00002-4>. This underscores the magnitude of danger concerning possible weaponization of this toxin. When observing the side one and side two of health in Chapter 27 of *Ares Le Mandat* to see where botulism fits within that framework, we can refer back to the fundamental operation of this biological agent which is to attack the neurotransmitters. Since there is no noticeable change in vital signs upon contracting botulism, we can deduce botulism to having dopamine theme with a very strong neurological component. Botulism’s later symptoms like vision problems, difficulty swallowing, slurred speech and muscle weakness mirror strongly those of dopamine deficiency: diplopia(double vision)/ difficulty eating and swallowing/ difficulty speaking and forming words/ problems holding the body in an upright position/ difficulties with balance when standing and walking/ uncontrollable eye movements. The source for diplopia symptoms in dopamine deficiency came from a study about Parkinson’s disease where it’s revealed that “Dopamine plays an important role in several processes related to vision, such as adaptation to light, oculomotor control, contrast sensitivity, color vision, visuospatial construction and spatial working memory [4–6]. Lack of dopamine can therefore lead to a range of visual disturbances in PD patients, such as diplopia.”(Borm CDJM, Smilowska K, de Vries NM, Bloem BR, Theelen T. How I do it: The Neuro-Ophthalmological Assessment in Parkinson’s Disease. *J Parkinsons Dis.* 2019;9(2):427-435. doi:10.3233/JPD-181523). Please note that people suffering from Parkinson’s disease have low brain dopamine concentrations. The similarities between both

the symptoms of dopamine deficiency and botulism allow us to designate botulism to side two of health where low dopamine is already located. We can also add Parkinson's disease there since it corresponds with low dopamine. This allows us to observe botulism as a biological agent, but with a somewhat contrast symptoms typology to Ebola or Anthrax. Ebola and Anthrax begin flu-like before becoming gastro-related. Botulism, somewhat conversely, starts (in some cases) with gastro problematic symptoms before being followed by neurological/dopaminergic impairments.

Plague (*Yersinia Pestis*) as a possible biological weapon is of heightened concern for national security experts around the world. Plague was most famously coined "Black death" due to the black scabs that form on the skin during infection. In the 14<sup>th</sup> century, the disease wiped out a third of the population of Europe. It's primarily contracted by rodents such as rats, mice, squirrels, and rabbits. It's spread to humans via bites from the infected fleas of those rodents, mainly rat fleas. The infection occurs in different forms: bubonic, septicemic and pneumonic. Bubonic plague infection of the lymph nodes result in mostly flu-like symptoms--high fever, chills, muscle aches, headaches, extreme weakness and swollen lymph nodes. Antibiotics in a timely fashion resolves 90% of the cases. However, when left untreated, the *Y. pestis* bacteria of Bubonic plague eventually enters the blood stream and the infected person then contracts what's called Septicemic plague. The symptoms of septicemic plague are gastro-related and include nausea, vomiting, diarrhea and abdominal pain. The infected person also develops severe bleeding problems, bruises, blood in the urine and from the mouth, nose and rectum. The bleeding problems are followed by severe breathing difficulties and even death. With timely treatment, 75% to 80% of people survive. The connection between bubonic and septicemic plague as the same infection in different stages follows the pattern we see in both Ebola and Anthrax where a first stage presents flu-like symptoms, and a second stage results in gastro/bleeding symptoms. In Ebola and Anthrax, the flu-like illness(side two) serves almost like an igniter to induce an avalanche of everything related to gastro/bleeding and side one of our list. The difference between the plague vs Ebola and Anthrax is that the first and second stages of the Plague infection are given different names--Bubonic and Septicemic respectively. This distinction between the stages of the same infection isn't denominated in Anthrax and Ebola. The symptomatic aspects of Plague allow us to allocate Bubonic plague with flu-like illnesses to side

two and Septicemic plague to side one with gastro problems, Anthrax(stage 2) and Ebola (stage 2). Another form of plague is Pnuemonic, which happens when the Y. pestis bacteria affects the lungs. The symptoms are flu-like and is transmitted through breathing in droplets--from infected humans or animals--that contain Y. pestis bacteria. This is the most rare form, but can be easily weaponized as a bioterrorism agent. Pnuemonic plague would go on side two. Here is our updated lists with Botulism and Plague allocated appropriately:

Side one of health	Side two of health
High white blood cell	Low White blood cell
High blood insulin	Low blood insulin
High blood pressure	Low blood pressure
High HDL cholesterol	Low HDL cholesterol
(good cholesterol)	(good cholesterol)
Low LDL cholesterol	High LDL cholesterol
(bad cholesterol)	(bad cholesterol)
Cancer	High Triglycerides
Gastroproblems	Flu symptoms
VitaminE	Vitamin A(beta carotene, sugar)
Sickle Cell Anemia	Malaria
Ebola-stage 2(gastro symptoms)	Cardiogenic shock
Statins	depression(low dopamine)
Heart Attack	Heart attack
(heart disease)	(embolism)
Happiness(high dopamine)	Magnesium
Vitamin D	VitaminC
Calcium	VitaminK
VitaminB12	Iron
Zinc	Caffeine
Alcohol	Chemotherapy
Blood thinning	Blood clot
<b>Sodium</b>	<b>Potassium</b>
<b>Hydroxychloroquine</b>	<b>COVID-19</b>
<b>Remdesivir</b>	<b>Arsenic</b>
<b>Elevated liver enzymes</b>	<b>Ebola-stage 1(flu symptoms)</b>
<b>Heparin</b>	<b>Inhalation Anthrax-stage 1(flu symptoms)</b>
<b>Thiamine</b>	<b>Botulism</b>
<b>Radiation</b>	<b>Parkinson's disease</b>
<b>Inhalation Anthrax-stage 2(gastro symptoms)</b>	<b>Bubonic Plague</b>
<b>Sun</b>	<b>Pnuemonic plague</b>
<b>Septicemic Plague</b>	<b>Clouds</b>

By observing the sun on side one of health, along with radiation and vitamin D, we can further expound by allocating heat absorption to side one and heat refection to side two. Adding upon that, we can then factor in surface color. Since black surfaces absorb heat, we can add black surfaces to side one; white surfaces to side two. From there we can fill out the rest of side one and side two of health with all the elements of the periodic table based on their color. Black, blue, dark red, green brown, gray and silver--due to their heat absorption properties as darker colors--can go on side one. White, white-silver, or yellow colors--due to their heat reflection qualities as lighter colors--can go on side two. The sources for the color of the elements are:

1. Lide, David R., editor. *CRC Handbook of Chemistry and Physics*, 88th edition. Boca Raton, Florida: Taylor & Francis Group, 2008.

2. Yaws, Carl L. *The Yaws Handbook of Physical Properties for Hydrocarbons and Chemicals*. Houston, TX: Gulf Publishing Company, 2005.

3. "Fluorine." *Chemical Periodic Table*. Chemcool.com. 16 Oct. 2012. Web. 10/14/2020

<<https://www.chemcool.com/elements/fluorine.html>>.

**Please note that "Zinc" has been moved to side two in order to account for "Copper" being placed on side one. Studies have shown that high zinc/low copper levels are associated lower white blood cell counts, leukopenia, neutropenia, and anemia. Low white blood cell count is on side two. Copper and Zinc are antagonistic to each other.**

Side one of health  
High white blood cell  
High blood insulin  
High blood pressure  
High HDL cholesterol  
(good cholesterol)  
Low LDL cholesterol  
(bad cholesterol)  
Cancer  
Gastroproblems  
Vitamin E  
Sickle Cell Anemia  
Ebola-stage 2(gastro symptoms)  
Statins  
Heart Attack  
(heart disease)  
Happiness(high  
dopamine)  
Vitamin D

Side two of health  
Low White blood cell  
Low blood insulin  
Low blood pressure  
Low HDL cholesterol  
(good cholesterol)  
High LDL cholesterol  
(bad cholesterol)  
High Triglycerides  
Flu symptoms  
Vitamin A(beta carotene, sugar)  
Malaria  
Cardiogenic shock  
depression(low dopamine)  
Heart attack  
(embolism)  
Magnesium  
Vitamin C  
Vitamin K

Calcium	Iron
VitaminB12	Caffeine
	Zinc
Alcohol	Chemotherapy
Blood thinning	Blood clot
<b>Sodium</b>	<b>Potassium</b>
<b>Hydroxychloroquine</b>	<b>COVID-19</b>
<b>Remdesivir</b>	<b>Arsenic</b>
Elevated liver enzymes	<b>Ebola-stage 1(flu symptoms)</b>
<b>Heparin</b>	<b>Inhalation Anthrax-stage 1(flu symptoms)</b>
<b>Thiamine</b>	<b>Botulism</b>
<b>Radiation</b>	<b>Parkinson's disease</b>
<b>Inhalation Anthrax-stage 2(gastro symptoms)</b>	<b>Bubonic Plague</b>
<b>Sun</b>	<b>Pneumonic plague</b>
<b>Black surfaces</b>	<b>Clouds</b>
<b>Heat absorption</b>	<b>White surfaces</b>
<b>Septicemic Plague</b>	<b>Heat refection</b>
<b>Actinium-silvery metal</b>	<b>Aluminum-silvery-white metal</b>
<b>Americium-silvery metal</b>	<b>Argon-colorless gas</b>
<b>Antimony-silvery metal</b>	<b>Yellow Arsenic-soft yellow cubic crystals</b>
<b>Gray arsenic-gray metal</b>	<b>Barium-silvery-yellow metal</b>
<b>Astatine-Presumed very dark</b>	<b>Berkelium-silvery-white</b>
<b>Beryllium-steel gray</b>	<b>Bismuth-gray-white soft metal</b>
<b>Boron-black rhombohedral crystals</b>	<b>Californium-silvery-white</b>
<b>Bromine-red liquid</b>	<b>Fullerene-C60-yellow needles or plates</b>
<b>Calcium-silvery-gray metal</b>	<b>Cesium-silvery-white metal</b>
<b>Carbon/graphite-soft black hexagonal crystals</b>	<b>Chlorine-green-yellow gas</b>
<b>Fullerene-C70-red-brown solid</b>	<b>Fluorine-pale yellow gas</b>
<b>Carbon black-fine black powder</b>	<b>Germanium-gray white cubic crystals</b>
<b>Cerium-silvery metal</b>	<b>Gold-soft yellow metal</b>
<b>Chromium-blue-white metal</b>	<b>Helium-colorless gas</b>
<b>Cobalt-gray metal</b>	<b>Hydrogen-colorless</b>
<b>Copper-red metal</b>	<b>Krypton-colorless gas</b>
<b>Curium-silvery metal</b>	<b>Indium-soft white metal</b>
<b>Dysprosium-silvery metal</b>	<b>Iridium-silvery-white metal</b>
<b>Erbium-silvery metal</b>	<b>Iron-silvery-white or gray metal</b>
<b>Europium-soft silvery metal</b>	<b>Lithium-soft silvery-white metal</b>
<b>Francium-silver-gray-metallic (presumed)</b>	<b>Magnesium-silvery-white metal</b>
<b>Gadolinium-silvery metal</b>	<b>Neon-colorless gas</b>
	<b>Nitrogen-colorless gas</b>
	<b>Nickel-white metal</b>
	<b>Palladium-silvery-white metal</b>



Gallium-silvery liquid or gray orthorhombic crystals  
Hafnium-gray metal  
Holmium-silvery metal  
Iodine-blue-black plates  
Lanthanum-silvery metal  
Lead-soft silvery-gray metal  
Lutetium-silvery metal  
Manganese-hard gray metal  
Mercury-heavy silvery liquid  
Molybdenum-gray-black metal  
Neodymium-silvery metal  
Neptunium-silvery metal  
Niobium-gray metal  
Osmium-blue-white metal  
Ozone-blue gas  
Oxygen-colorless gas  
Black phosphorus-black orthorhombic crystals  
Red phosphorus-red-violet amorphous powder  
Platinum-silvery-gray metal  
Polonium-silvery metal  
Praseodymium-silvery metal  
Promethium-silvery metal  
Protactinium-silvery metal  
Radon-colorless gas  
Rhenium-silvery-gray metal  
Rubidium-soft silvery metal  
Samarium-silvery metal  
Scandium-silvery metal  
Gray Selenium-gray metallic crystals  
Vitreous Selenium-black amorphous solid  
Selenium(A-Monoclinic)-red monoclinic crystals  
Silicon-gray crystals or brown amorphous solid  
Silver-silvery metal  
Sodium-soft silvery metal  
Tantalum-gray metal  
Technetium-silver-gray  
Terbium-silvery metal  
Thulium-silvery metal  
Titanium-gray metal  
Ytterbium-silvery metal  
Yttrium-silvery metal

White phosphorus-White phosphorus is usually pale yellow  
Plutonium-silvery-white metal  
Potassium-soft silvery-white metal  
Radium-white metal  
Rhodium-silvery-white metal  
Ruthenium-silvery-white metal  
Strontium-silvery-white metal  
Sulfur( $\alpha$ -orthorhombic)-yellow orthorhombic crystals  
Sulfur( $\beta$ -monoclinic)-yellow monoclinic needles  
Tellurium-gray-white rhombohedral crystals  
Thallium-soft blue-white metal  
Thorium-soft gray-white metal  
Tin-silvery-white  
Tungsten-gray-white metal  
Uranium-silvery-white orthorhombic crystals  
Vanadium-gray-white metal  
Radon-colorless gas  
Zirconium-gray-white metal  
Zinc-blue-white metal

In the Clinical Case Reports Journal Volume 8, Issue 9 September 2020 <https://doi.org/10.1002/ccr3.2987> Pages 1666-1671, a research paper published in May 2020 entitled **Zinc - induced copper deficiency, sideroblastic anemia, and neutropenia: A perplexing facet of zinc excess** by researchers Ahsan Wahab, Kamran Mushtaq, Samuel G. Borak, and Naresh Bellam gave an analysis of a case study involving someone suffering from zinc toxicity/copper deficiency. It was noted that the patient's initial lower white blood cell count was resolved after supplementing with copper. Her white blood cell count rose to normal levels after being given 2 mg daily oral elemental copper( to counteract the elevated zinc) for 2 months.

Any role Zinc has in fighting flu-like illness will now have to be associated not with zinc itself(since it's now moved to side two from side one) but on the copper homeostasis that occurs when a balance of zinc/ copper is present in the body.

Other studies that link Zinc deficiency to certain cancers help to affirm this alteration of zinc's placement over to side two as a fighter against cancer.

You will notice from this newly formulated side one/side two layout (with all the elements allocated) that oxygen was placed on side one. This was done because of the correlation between low blood pressure(side two) and low oxygen. Consequently, this allowed me to posit that all the asphyxiation gases like argon, helium, nitrogen, etc. should go on side two since their primary component is to displace oxygen.

Another key point to observe in order to avoid confusion is the way that many of the radiation elements are placed opposite of radiation itself. The best way to understand this qualification is by understanding how water- when heated- will give off a heat that would affect a person differently than the actual water would should that water be left unheated and also consumed. Also the concept of radioactive decay fits with the thesis of opposing sides of health. Radioactive decay occurs when an atomic nucleus is bombarded with neutrons, thus creating an imbalance between the protons and neutrons within the nucleus. The neutrons then cause the atoms to split into 2 smaller atoms. The 2 smaller atoms subsequently release more neutrons. Those neutrons hit the 2 smaller atoms, which then causes each of those 2 atoms to split into 2 smaller atoms, which then leaves 4 smaller atoms altogether. Those 4 smaller atoms then subsequently release neutrons which hits each of those 4 smaller atoms causing all of those atoms to each split into two. This chain reaction simply continues and is what is called the fission process. This fission process of radioactive decay in which the atoms split into smaller atoms can be best understood by observing the atoms as the elements on the periodic table, where an element with a higher atomic number splits into 2 elements with lower atomic numbers. For example when Uranium 235 is bombarded by neutrons, it absorbs the neutrons and splits into one Krypton atom and one Barium atom, both of which have lower atomic numbers than Uranium. This nuclear process can be understood, according to this thesis, as side one(where heat and radiation are located) taking over side two(where many of the radioactive elements are located).....all by way of neutron bombardment of an atomic nucleus and the subsequent radioactive decay during the fission process. This allows us to allocate neutrons to side one and protons to side two. We can also began to hypothesize what proton capture would effectuate in terms of a large scale reaction of side two taking over side one--something that would likely produce extreme cold and thus freeze everything in its path. It would be a Cryogenic reaction.

When it comes to hypothesizing the opposite process to fission (radioactive decay generating tremendous heat energy), one can refer back to the fundamentals of plutonium production. During WWII, in the B reactor at the plutonium production site in Hanford, Washington, scientists bombarded Uranium with neutrons for several weeks before placing the extremely hot Uranium and its fuel elements in a pool of water behind B Reactor's core for cooling. During that time, Uranium decayed into plutonium and the radiation from the rest of the fission products subsided. The fission products are the increasingly smaller unstable elements that come about when the atoms split into smaller atoms during the fission process of Uranium being bombarded by neutrons. When the Uranium was stored in water, the Uranium 238 (an isotope of Uranium) absorbed a neutron and became uranium-239. It then converted that neutron into a proton. Since the Atomic number of an element is its number of protons, the process of an atom converting a neutron into a proton validates identifying the atom as a new element. Since Uranium was the heaviest element at that time with the highest atomic number, a new element arising from a Uranium atom converting a neutron into a proton would be added to the periodic table. In this case, the new element was named Neptunium. Therefore Uranium-239 became Neptunium-239. Within 2.5 days, Neptunium-239 converted a neutron into a proton, which validated the identification of a new element called Plutonium or Plutonium 239 in this case. This process that took place while the Uranium fuel elements were being cooled allows us to hypothesize that unlike the heat generating radioactive decay that takes place in fission, a cold generating process would involve a chain reaction in which atoms are constantly converting a neutron into a proton and thus creating new elements in the process--elements that could only be identified and named from the final element that would come about at the end of that process. In order to track those new elements in this case of extreme cooling, one would have to place--after the extreme cooling process-- those elements in a water storage that would bring those extremely low temperatures to normal temperatures. During a process such as that, radioactive decay would take place, leaving the water full of unknown elements that would have to be identified and named using solvent extraction techniques and spectroscopy.

A hypothesis on how a self sustaining chain reaction would continuously create new elements and emit a tremendous amount of cooling could be surmised through understanding the beta radiation process: Uranium-238 absorbs a neutron during fission and becomes Uranium-239, which then--after 23 minutes(in water storage)--beta decays and converts a neutron to a proton and becomes Neptunium-239, which itself after 2.5 days(in water storage) does the same and becomes Plutonium-239. Plutonium-239 has a half-life of about 24,100 years before it would become Americium-239. However, upon absorption of 4 neutrons, plutonium-239 becomes plutonium 243, which has a half-life of 5 hours. If the uranium-239 was bombarded with neutrons during the water storage phase, the isotopes would continuously beta decay into new elemental isotopes with short half lives, thus more quickly emitting a tremendous amount of cooling. (The hypothesis is that the formation of new elements brings about cooling) Using Oxygen-15 labelled water, which is regular water, but with the oxygen atom replaced by oxygen-15 could possibly accelerate an isotope's half-life. The oxygen-15--as a positron-emitting isotope--would create an environment that would help speed up the process by which each new isotope eventually releases an electron and converts the neutron into a proton. The idea behind this is that the presence of positrons(subatomic particles with positive charge) will exert an attractive pressure on the electrons of the atom, thus speeding up the process of its elimination from the atom, which would reduce the atom's half-life and conversion time into becoming a new atom. Hypothetically harnessing this into a cryogenic explosion that could offset the massive radiation release of a nuclear bomb would require containing uranium-239 within an apparatus of deuteron bombardment of a nitrogen gas which creates oxygen-15. This would create the extreme cooling chain reaction with uranium-239 becoming Neptunium, Neptunium becoming Plutonium, Plutonium becoming Americium...etc etc....presuming the Oxygen-15 solution would rapidly accelerate each element's half-life. Such an outcome would be making use of the philosophy of side one and side two of health being opposed to one another, but on a large scale. A nuclear explosion is posited as the side one reaction while a cryogenic explosion is posited as the side two reaction to offset it

Another possibility for nuclear defense is the isolation and use of Xenon-135-- a product of the Uranium-235 fission process that takes place in nuclear reactors. As a neutron absorber that often cools down nuclear reactors by absorbing the extra neutrons, Xenon-135's use in laser defense technology could poison the nuclear reaction of any atomic missiles that it comes in contact with. Through diffusion, the Xenon-135 gas could penetrate the missile. Theoretically at a high enough temperature and pressure, a Xenon-135 powered laser beam in contact with the target would(at the very least--keeping in mind that high powered laser beams destroy missiles) diffuse into the external components of the target and infect the fission elements within and thus reduce the chances of a proper nuclear fission reaction taking place when the missile eventually detonates.

#### Subterranean Warfare

In building upon this thesis concerning the 2 sides of health, I offer an explanation that would further expound on how there must be an opposing or offsetting effect to everything. We will look at the opposing effect between air power and subterranean power. Throughout the history of warfare, subterranean structures have been used against enemy forces with great success. Back during the Arab invasions in the 7th century, monks found that they could successfully evade Arab forces by hiding underground. Back in WWII, the Japanese were effective in building underground fortification against US air power, and so were the Chinese, who built underground fortifications against Japanese air power. The Vietnamese during the Vietnam war was possibly the best example of how effective underground fortifications are against a superior air force. Many of the larger military powers, have had no formidable answer for this type of defense, even against small pockets of militants. The current conflict in the Middle East(2002-2021 as of now) is marred by the continued survival of these insurgent militant groups. Major powers like Russia and the United States have carried out a number of aerial attacks against them in recent years, but only with enough success to weaken the threat, not totally eliminate it. In recent years, Israel has faced numerous problems with the underground operations of Hamas, the militant group that controls the Gaza strip. Not only for smuggling resources into Gaza, the tunnels used by Hamas has allowed them to, at one point, ambush and kidnap an Israeli soldier

from Israeli territory. Hamas is also able to conceal ballistic fire locations with the use of the tunnels, making it more difficult for Israel to locate and destroy them. This underground methodology is also how ISIS, the Al Qaeda offshoot terror organization, continues to launch ambush attacks against Syrian regime soldiers, even after years of being bombarded by both US and Russian airstrikes. The operations of Hamas and ISIS and their continued survival in small numbers is setting the stage for a new type of warfare: Subterranean warfare. It's obvious that the larger powers have no real answer on how to battle effectively against underground forces, other than planting explosives at the entry or exit points or using aerial bombers to drop deep penetrating missiles into tunnel locations. This, however, is largely ineffective since many underground structures have detours that lead to multiple entry and exit points, making the destruction of them much more complicated. It also doesn't help that the sections which have been demolished by explosives are easily repairable. Another issue surrounding the search and destroy aspect of combating this underground system is that soldiers are often unable to determine whether or not the tunnels are booby trapped.

This type of warfare has been effective for centuries; what ISIS and Hamas is doing is bringing notice to it. In fact, most nations in the Middle East and around the world for that matter already have these underground structures in place and will only be emboldened against stronger nations the longer a small number of militants—relatively speaking—are able to survive by simply building underground fortifications. Israel and the US are working on technology that will allow them to detect underground tunnels, and if they are successful, we may see an end to the prolonged conflict in the Middle East. If not, then we can expect that everyone there will attempt to pursue self determination without regard for another country's superior air power. The technology used to detect underground tunnels involve the use of seismic or gravity detectors. Seismic detectors are able to measure the vibrations as they pass objects beneath the surface of the earth, and if able to find a common anomaly that would identify the existence of a tunnel, those detectors could be effective. However, there would still need to be intelligence that pinpoints the general area of where a tunnel may exist. Gravity detectors like gravimeters are able to detect changes in the Earth's gravitational field based on the density beneath the surface. The presence of a void underground would reduce the

gravitation force and would thus show up accordingly on the gravimeter. Another method is measuring the voltage of an electrical current, which would move at a lower voltage inside a void. Ground Penetrating radar(GPR) is another device used to detect tunnels. GPR uses pulses of radio frequency energy to see underground. The distances detected underground however is limited, since it maxes around a depth of 50 ft. Tunnels have been dug by drug smugglers and militants as far as 100 ft beneath the surface. The use of bunker busters(aerial bombers employed by the US against ISIS) which can penetrate hundreds of feet of both earth and concrete, is still challenged by the possible extensiveness of the tunnels. Some tunnels have multiple detours that allow for escape and reconstruction of damaged sections. Drug smugglers now present a much higher risk in terms national security, since a tunnel system is both a defensive and offensive weapon--irrespective of its use in drug smuggling activities. The arrest of two Houthi militants at the US/Mexican border in 2021 raises the question of vulnerability, since one can posit that infiltration of Latin America by radical militants puts the US at risk of not only the implication of undetected drugs coming into the country, but also the implication surrounding the likelihood of a militant attack or ambush initiated from an underground tunnel originating from Mexico.

The tunnel entries built by Hamas and ISIS are about 1 meter wide and go as deep as 100ft beneath the surface. Pneumatic jackhammers are often used to dig out the tunnels and workers cover about 2-3 meters a day using them. Militants usually employ skilled workers to do the job. These workers normally have some knowledge of the engineering and geological aspects that go into constructing a tunnel. The tunnels are often dug from the inside of a shelter or home, which provides operatives with more stealth. ISIS militants who have escaped enemy fire, often seek refuge in nearby villages and pay residents there to help them construct tunnels.

There are some hazards associated with the initial constructing process, such as cave-ins and collapses. It's common for workers to perish during the excavation process. Collapses usually result from not waiting long enough after a torrential rainstorm to resume tunnel construction. As a result, soil erosion, which often compromises the landscape, puts workers underground at risk of being trapped after the collapse.

Casualties have ironically allowed Hamas to improvise on the underground construction process and gain a greater understanding of it altogether. Hamas has in turn managed to equip their tunnel system with electricity, concrete walls and ceiling, and is able to conduct communications. Hamas has been able to smuggle concrete into Gaza and has used it to fortify their tunnel system. ISIS, on the other hand, has a less featured system, but has learned over the years how to survive direct air assaults by hiding underground. It's likely that ISIS will build their tunnels based on the proximity of gas field locations. Many of the recent ambush attacks by ISIS against Syria have occurred near oil and gas fields. Oil and gas are both important elements of warfare, as they allow militants to maintain electrical, logistical, and communication channels.

Looking at what we've gathered so far in terms of side 1 and side 2 of health, we can begin the process of placing "gravity" itself. With elements like the Sun, and oxygen on side 1, and carbon dioxide on side 2, we can safely place gravity on side 2. Anti-gravity, likewise, would go on side 1. We can also add air power, thrust, propulsion to side 1 since those are anti-gravity concepts. This sinking aspect of gravity as it relates to an object toward the earth affirms its placement with carbon dioxide on side 2 since there is more carbon dioxide underground than above ground. There is also less oxygen underground.

So if we look at the opposing aspect relating to above-ground and underground, we see that the deeper one goes under the surface, the more ineffective all above surface components become as it relates to any influence it could have on subterranean components. This aspect applies both ways. To apply analogously the idea that a component from side 1 or side 2 can eventually overcome and overpower the components of its opposite side, we must presume that more of one or the other would propose a threat to its opposite. More penetration into the earth does not necessarily threaten the components or situation above ground, or vice versa, a higher elevation above the surface doesn't necessarily threaten the underground components.

The biggest threat to any underground structure is heavy rain. In most tunnel collapses, heavy rain is often the main cause. Geologically speaking, rain effects are often deterred by things such as concrete or



mulch which shields the soil from the effects of heavy rain or wind. In tunnel collapses, after the rain water hits the soil, it eventually infiltrates its way to the tunnel's surrounding rock, weakening it through erosion. Water gets into cracks and joints, eventually causing the rocks to break open and split apart. At the moment one can presume that precipitation is perhaps the greatest threat to underground tunnels. This in itself is a form of intelligence since it's likely that, because of this, militants will not shelter or construct underground during days of heavy rain. They may also, as a way to improvise, start constructing tunnel paths directly underneath surface paths formed with concrete or asphalt, i. e. city streets. This would lessen the effect of heavy rain on tunnel stability. However, the lack of arable land and prevalence of prolonged droughts in the middle east still allows for uninterrupted construction of sustainable tunnels there. This allows us to comprehend the notion that underground structures would be more operational or populated during seasons of drought as opposed to seasons of precipitation. It's likely that militants in the middle east have already planned in advance for climate factors.

The approach to this field of conflict should be applied with some discrimination since factors like 'what the tunnels are being used for' need to be taken into consideration. Smuggling purposes would not warrant a counter-terrorism search and destroy operation since civilians are often employed and in many cases forced into transporting cargo to and from. If the tunnels are used for both, then it's all the more difficult to discriminate accordingly. Ideas have been presented which propose that soldiers infiltrate on foot into the actual tunnels and conduct operations from there. The challenges to this idea is that signals are often weaker or disabled below the surface, making it difficult to maintain good communications. Another issue is the question of soldiers having the necessary oxygen to carry out prolonged subterranean missions. Beneath the surface, oxygen levels are usually lower, which puts soldiers at risk and endangers the mission. There is also the potential of carbon monoxide poisoning should soldiers be exposed to heavy smoke. Gas mask and other oxygen-storing equipment would be ineffective in protecting personnel against a carbon monoxide build-up within such an enclosed space. Ideally being able to detect and display tunnels on above surface radar makes for a more astute counter tunnel strategy since personnel would be less required to enter the

underground fortification. They can simply wait for operatives to exit the underground structure before apprehending the situation. This makes it easier to discriminate exactly who goes into and out of the tunnels.

While jihadist cross-border tunneling is an issue for Israel's national security, it still ranks below the dangers presented by incoming rocket fire from militants in Gaza. While the Iron Dome is increasingly effective in countering enemy rockets, Israel is still faced with the possibility of high civilian casualties and also the geopolitical implications of defense. The Iron Dome presents a conundrum from a geopolitical perspective. Hamas is able to calculate how firing rockets at civilians—with these rockets being intercepted by the Iron Dome defense—should allow for more justification later on should Israel retaliate and cause Palestinian civilian casualties in the process. The success of the Iron Dome in containing and intercepting incoming rocket fire often de-magnifies militant aggression toward the civilian population. In this case, Israel should get credit for not allowing enemy rockets to kill Israeli civilians, negating a prospect that would conveniently allow for Israel to garner more international support in defense against militants in Gaza. The militants in Gaza are wise in recognizing the need for international sympathy and their calculated strategy has brought forth the necessary aid needed to build up their reserves, and the international support needed to justify their rocket attacks on Israel. The geopolitical aspects are heading in the direction of Israel having to call off any excursions in Gaza territory, while at the same having the burden of defending themselves against rocket attacks, with those terrorist attacks having no implication on the international outlook of militant aggression against Israeli civilians. Under this paradigm, actual terrorism becomes defined when the terrorists are successful. When they are thwarted, the attempted terrorism has no bearing on the perpetrator. This factor puts more pressure on the application of precision and the technology needed to apply it, since Israel will not seek justification by allowing Israelis to be killed by rocket fire. It should be said that allowing attacks against one's own territory and civilians was a tactic commonly used by armed forces throughout history.

The ability to map out on radar the location of all underground structures within a given area is the ideal scenario regarding new technologies. This would allow for personnel to optimally discriminate

who goes into and out of the structures. It would also allow them to plan in advance an effective approach in neutralizing any dangers surrounding the operational intent within the tunnels. This neutralizing aspect may serve as a more ideal approach since the existence of the tunnels may be an asset in the future and simply keeping the tunnels under observation, as opposed to destroying them, can provide an added defense measure in an unfavorable event. The tunnels can also be re-fortified and sustained for later use or as a geological study, saving both time and money.

The above surface structures provide some protection to underground tunnels. Concrete and Asphalt reduce the effects of heavy rain on the soil and averts the possibility of rock erosion beneath the surface, which is normally a factor that causes many underground structures to collapse. This makes concrete the number one area of interest in locating the existence of an underground tunnel. If the workers are apprehending the effects of precipitation, then it's likely that they have improvised by routing tunnels to follow an alignment with the above surface concrete. If that is not the case, then they would have improvised to only construct or inhabit tunnels during dry seasons, and reduce operations there during wet seasons. Gaza militants fortify their tunnels with concrete surroundings, however due to creep (which happens to concrete under sustained load), concrete can easily collapse underground. Heavy soil and rain infiltration into underground rocks cause rocks to break, losing their ability to support the surrounding soil. The wet heavier soil then places more pressure on the underground tunnels, eventually causing them to collapse.

Compared to other places, the Middle East presents less risk of tunnel collapse, due to the prevalence of droughts. Underground tunneling would be much more hazardous in tropical climates where it rains regularly, making the construction of underground tunnels aligned to the above ground concrete much more imperative. A good contingency for urban areas would be the use of rods that penetrate deep into the ground at different intervals in a city through concrete or asphalt surfaces, allowing for possible detection should diggers take into consideration the location of concrete surfaces as they construct a tunnel. Paved roadways in urban areas provide a security aspect for

tunnelers and a security risk for cities, should militants apply this type of warfare.

In referencing the side 1 and 2 of health as it relates to air power and tunnel fortifications, we can ruminate on the propulsion and thrust anti-gravity aspects of side 1 as direct antagonists to pro-gravity underground construction on side 2. In propulsion and thrust, pressure is applied to the surface before it breaks the gravity force. This pressure can be applied to side 2 since it goes with the gravitational force. The after-effects of it should define thrust and propulsion on side 1 since gravity is antagonized upon lift. We see in tunnel collapses how pressure from heavy wet soil and surrounding rock degradation has a primary effect. It's analogous to how symptoms arising from side 2 components are exacerbated by addition of another component of side 2, or vice versa, symptoms associated with side 1 exacerbated by addition of other components on side 1. We see in this case, that destruction against the underground component means the application a similar component setting off a toxic effect. However, the void in a tunnel can be applied to side one since it does contain air, and the gravitational pressure surrounding it-as a component of side 2-can serve as the direct antagonist. If we line up our list it should look like this.

Side 1 of health	Side 2 of health
Air power	Underground structure
Upward effect of Propulsion	Downward Pressure of propulsion
Thrust	Downward pressure of thrust
Anti-gravity	Gravity
flying	digging
void in a tunnel	surrounding soil

One can gather that digging out a tunnel beneath the earth's surface is actually the application of a side 1 component against side 2, since the void created brings in oxygen from above the surface. The tunnel construction itself becomes the result of an action against gravitational forces, especially when excavated horizontally. This would call for certain parts of the excavation process to be on side 1. The greater the void, the more it contributes to the side 1 component of above surface

oxygen. Correspondingly, the gravitational effect from hollow ground is much less than that from very dense ground. The density of the earth antagonizes anti-gravity intentions. The location of someone in a void underground is in a position of antagonism to gravity itself, which is why when soil becomes more dense, the load on the underground tunnel increases, putting it at risk. With this, we can place the void within a tunnel on side 1 and the surrounding soil on side 2. The antagonism to air power is not the tunnel, but the underground soil surrounding the tunnel. We can thus presume that an aerial object would have to contend with a greater degree of gravitational pull when positioned above a more dense part of the earth. There are many myths and legends that speak of aircraft disappearing when navigating through certain locations on earth. Even in this regard, one can hypothesize that the aircraft may have encountered some supernaturally dense terrain that could have theoretically yanked it from the sky or in another aspect, supernaturally hollow terrain that could have propelled the aircraft into outer space. Of course that example is just conjecture on an extreme hypothetical scenario.

The implication of search and destroy, without due discrimination, could undermine any incurred security benefit. The proposal of search, entry, and neutralization becomes a very plausible approach when taking geopolitical issues into account. The importance of discrimination in this type of warfare cannot be understated. In fact, the often irresponsible use of drones by the US in places like Africa and the Middle East has given rise to militant aggression and fostered an international urgency for fair tactics and greater precision. Since most tunnel construction is initiated from the inside of a building as a way to avoid detection, the security apparatus in place can start making efforts to install seismic sensors, which senses the ground vibration of the earth. These can be installed at various locations no different than the way traffic lights are set up in urban areas. This works at both the foreign and domestic level. The vibration effect of drilling can be detected by a nearby sensor, alerting authorities of possible tunnel construction in the area. This approach attempts to locate the initial tunnel construction process, which may be more feasible than trying to locate tunnels already built. Since jackhammers are normally used to construct them, detecting the subsequent ground vibrations while honing in on the actual drilling site is easily achieved with today's technology. Without

this aspect accommodated into such a program, a huge void would linger should technology attempt to risk time and money in innovations that may take a while to develop. The added time there would provide opportunity for construction of more underground fortifications, an unfavorable prospect from a national security perspective. Focusing first on detecting ground vibrations from the initial drilling process can prevent the proliferation of underground networks. There is a containment aspect to this strategy that should be considered, even if militants could simply work around it by constructing tunnels from within a tunnel. This argument is supported by the fact that the existence of tunnels in the present tense has not yet reach a tipping point. The security apparatus has enough time to begin the process of prevention, as opposed to elimination of existing tunnel structures. The idea is that employing the use of seismic sensors at various locations to detect ground vibrations that come from drilling holes is much easier than trying to develop technology that would detect and locate already-operational tunnels. While sound barriers could theoretically reduce the noise effect of drilling, it cannot deter the vibration aspect that would arise from it. One has to presume that the ground vibration signal detected from the use of jackhammers can be displayed on a device situated within a certain proximity. Installing this type of technology requires thinking ahead along with application before the fact.

A technology that could possibly help detect operational tunnels would be acoustic sensors, assuming the tunnel is fully operational with no more drilling applied to its development. Footsteps would be the only noise that could give away its location. However, in order for this to be developed, one would have to undertake their own tunnel construction and develop algorithms that account for footstep noises at various depths beneath the surface along with its position in relation to the sensor. The project would involve the construction of multiple tunnels at various depths with the sensors placed at various depths and distances from the footsteps. Each sensor would detect the footstep noise at each depth and distance. Algorithms can then be developed that would identify the footstep noise and account accordingly for the distance/position from the sensor. This would help in the noise discrimination aspect of accurate detection and allow one to locate the exact position of the tunnel. A distance metric should be formulated for real-time application. If multiple sensors are alerted, then the algorithm

and distance metric should allow one to be able to trace the path of the tunnel.

While there are challenges in the use of acoustic sensors to apprehend footstep noises among other noises within a certain environment, the use of acoustic sensors underground would make for an easier discrimination process, presuming that there is less background noise underground. It's possible that this technology can be used in conjunction with seismic sensors.

Personnel breach of a tunnel structure poses significant health hazards. One is the possibility of tunnel collapse under sustained load. Mitigating the chances of being in the tunnel during a collapse would come with keeping a close eye on climate factors like precipitation, which is a primary cause of tunnel collapses. Making it a point to avoid tunnel excursion during times of heavy rainfall increases the likelihood of survival and reduces the risk of collapse while being present in the tunnel. Another issue is the possibility of carbon monoxide poisoning should a fire break out in the tunnel. The protective masks don't protect against smoke. Ethanol vapor inhalation could provide some protection against carbon monoxide exposure. In a study involving rats, ethanol intoxication was found to have a protective effect against carbon monoxide poisoning. This idea can be applied underground if the ethanol, which is a flammable agent, is sealed safely away from any possible contact with incendiary materials or ignition factors. Flammable materials are recommended to be stored in areas where there is strong ventilation. Underground structures, however, usually lack in this regard. The only workaround is for operatives to enter underground tunnels with alcohol in their system. The drawback of this is that the alcohol would contribute to reductions in judgment and reaction time in the event of a serious emergency. This is not the ideal state for anyone to be in during a risky mission, but it's the only way to safely make use of alcohol's protective effect against carbon monoxide poisoning in a poorly ventilated enclosed space. This also offers the idea that a trade off may be necessary—giving up some reaction time and judgment in exchange for extended time in the tunnels. Certainly during the breaching process, ethanol vapors could be applied to breathing apparatuses. The importance of a workaround is mediated by the fact that personnel would be able to stay underground much longer. If we

revert back to the side 1 and 2 of health(pg 16 & 17 of this appendix), we already see that oxygen and alcohol are placed on the same side, affirming alcohol as a proponent of oxygen and an antagonist against anti-oxygen elements. So it makes sense as to why ethanol, which is the main ingredient in alcohol, would provide protection against carbon monoxide poisoning. Correspondingly, there could other factors on side 1 that may protect a person in low oxygen environments.

Another challenge facing the underground operations is the adequacy of communications equipment. Signals are often lost at very deep locations beneath the surface of the earth. Thick layers of earth embedded between the tunnel and the surface is the major factor in signal blockage. Radio signals have a hard time penetrating those thick layers, which obstruct the necessary communications. In urban environments, radio signals encounter similar obstruction in areas where the receiver is positioned behind or above thick or multiple layers of concrete. In skyscrapers, radio repeaters have to be installed in order for communications to reach personnel located on higher platforms. Signal strengthening is a key element in tunnel communications, however personnel could encounter underground structures or situations where these signal strengtheners won't be handy.

Sound travels through the air, water, and many solid structures. When a person speaks into a walkie-talkie, that sound is converted into radio waves or signal and transmitted with the antenna. A walkie-talkie using the same channel can receive that transmission with their antenna and decode the sound from the signal. In underground situations, the signal transmitted is often blocked by the thick barrier of earth between the tunnel and surface. A creative workaround would be finding a way for the sound to be converted into bass or vibration before it's converted into a radio signal and transmitted via antenna. The hypothesis here is that the signal's penetration power is directly related to the sound's penetration power. An example would be how the bass of music or voice can still be heard behind a thick barrier, even when the sound of the voice or music can no longer be heard. There would have to be a correlation where as the transmitted converted sound portion of the signal could not be detected by the receiver, the converted bass portion could. Just as there is a point where sound cannot be heard beyond a certain amount of thickness of a barrier, correspondingly there must be



a point where the radio signal cannot be received beyond a certain amount of thickness of a barrier. When bass is applied to the sound, the sound itself is decipherable beyond the sound blocking barrier through the vibration caused by the bass. One can presume that this bass vibration converted to radio signal would allow for a transmission that would allow the receiver to pick up the signal of the bass vibration beyond the limit of the signal of a regular voice sound, just as the bass itself allowed for the sound to be deciphered beyond the limit of where the sound could penetrate.

A number of people have reported positive results using flat antennas in their basement, an area in buildings where reception is a problem for a number of devices. Based on this information, one can presume that mounting increasingly thin antennas on communication devices could have a positive effect on signal detection from underground tunnels. Mounting antennas on a PVC pipe is also a typical method used to boost signal reception. Incorporating these factors into tunnel communication devices could provide some progress toward eventual breakthroughs.

In the present day, the Middle East is perhaps the greatest example of how effective tunnels are against urban defenses. Beginning in late 2013, ISIS was able to lay siege and occupy large swaths of territory in Iraq and Syria before eventual US intervention in Iraq in 2014 and Russian intervention in Syria in 2015. Even after encountering numerous aerial bombardments by US and Russian Air Forces in Iraq and Syria respectively, ISIS has still managed to survive with the use of tunnels, even launching successful ambushes against Syrian regime forces, a midst their dwindling numbers, thus prolonging the conflict and effectuating an urgency for greater battlefield discipline. Many of the armed forces around the world have recognized the threat and began making concessions to deal with the problem. Israel faces the greatest challenge of dealing with the threat of underground operations by enemy forces. Hezbollah and Hamas have both made use of tunnel warfare and at numerous junctures, successfully infiltrated Israeli territory. Israel has bolstered their defense in response and used technology over the years to locate a number of cross border tunnels. The dangers of kidnappings, planting explosives, hostage taking, and all-out sieges are posed by effective use of underground tunnels. In the West, many underground structures have been built, but mostly for drug

smuggling and immigration purposes. There is at least one instance of a tunnel being built for a bank robbery, which ended up failing due to collapse as a result of heavy rainfall. Portions of the tunnel likely aligned with surface terrain comprised of dirt. When it rained, the water penetrated the soil and eroded the surrounding rock of the tunnel, causing it to collapse. It's likely in the future that attack tunnels will be built to align with surface concrete areas to reduce the risk of collapse from heavy rainfall.

The issue of heavy rainfall brings to light the importance of knowing the surface terrain above the tunnel structure. Surface terrain covered in concrete or mulch is at less risk of compromising underground tunnel stability than surface terrain made up of soil or regular dirt. The concrete and mulch limits the level of water that can penetrate the soil and the tunnel's surrounding rock. When overexposed to water, rocks can break and cause tunnel collapse.

We can only assume that many attack tunnels will not be stabilized with rock bolts. Rock bolts are simply long anchor bolts that are drilled into the ceiling of a tunnel in order to bolster stability and prevent collapse from sustained load.

Technology that would allow underground personnel to detect the type of surface terrain aligned directly above their tunnel position could help with safety protocols regarding unstable areas of the tunnel structure. We posit that tunnel areas aligned with soil or dirt terrain would be areas where there is a high risk of collapse. Tunnel areas aligned with surface terrain covered in concrete or asphalt would be at less risk of collapse.

Focus areas should be narrowed down to regions where rainfall is minimal, since less rainfall correlates with less risk of tunnel collapse. Lack of knowledge on this factor could imperil those embarking on tunnel projects in more tropical areas if they haven't improvised and taken into account the importance of tunnel alignment with concrete covered surface terrain on tunnel stability. Yet, it's important to note that concrete does erode, but extremely slowly. It can take hundreds or thousands of years of being exposed to rainfall for it to began showing signs of wear. This may be a reason why Hamas uses cement for their

underground tunnels. However, there is still a chance of collapse if the surrounding rock erosion outside of the underground concrete tunnel increases the overall load on the concrete itself. The increased sustained load increases the amount of creep and compromises the overall stability of the tunnel.

Those seeking to imitate the Middle East or the Mexican border in terms of constructing underground structures must take into account that the lack of rainfall in those areas is a major asset for tunnel construction. Embarking on such an endeavor in tropical areas will require more risk, time, equipment, knowledge, and patience.

The most optimal idea concerning the tracking of tunnels would be if the tunnels can be discerned from satellite imagery or above surface radar. It was mentioned before that the greatest natural enemy against underground tunnels is heavy rain. Upon research, it occurs that the greatest natural exposers of underground tunnels are sinkholes. If there is a way for surveillance to spot the presence of sinkholes on its display apparatus, it could lead to intelligence regarding the location of a tunnel. Sinkholes have exposed the location of numerous underground excavations. The technology used by NASA to foresee sinkholes in advance could correlate into technology used to locate tunnels from observing radar systems. In 2014, NASA used technology that bounced signals off the ground and measured the differences in the phase of the waves returning to the satellite. Ground layer surface deformity moved horizontally toward where the sinkhole eventually formed. As a result, horizontal surface deformations became the key indicator of sinkhole formation, allowing for a possibility that tunnels could be detected remotely.

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